THE IRON AGE

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Guarding the World's Food Supply

How a Thin Gray Wall of Steel and Tin Holds in Check the Forces of Decay and Makes Harvest Time Last the Year 'Round

PERHAPS the most remarkable dinner in history took place in Hull, England, in the year 1911. A number of scientists partook of soup, roast beef and roast veal, turnips and carrots and finally, jam. The description of the menu makes it obvious that the distinction of this dinner did not lie in its epicurean delights. The truth is that while the food was fresh and savory, many hotels in England could prepare a more tempting repast.

The unusual thing about that somewhat limited banquet was the fact that nothing on the table was less than 86 years old!

Those vegetables had been prepared in the days when railroads and steamships were unknown, when the Monroe Doctrine was first announced to the world and when Napoleon Bonaparte was reflecting upon the glories of the empire and the tragedy of Waterloo, in his exile upon St. Helena. Those meats had been prepared by cooks who were dead before Queen Victoria began her long reign, the soup was the pride of a chef whose very name had been forgotten.

They were canned foods, left in an Arctic cache by Captain Parry, the famous predecessor of Peary and Amundsen, in 1824 and brought to the museum at Hull by Sir John Ross who discovered the hiding place eight years after the explorer had left his provisions there.

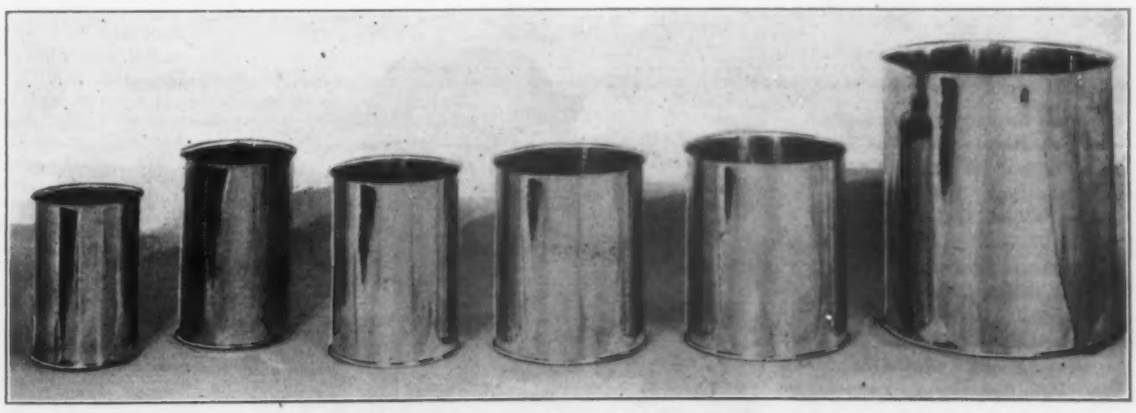
There are countless other instances of canned foods eaten many years after packing. Long before the tin can as we know it came to help the cook and aid the housewife, man had sought to make fruits and vegetables available beyond the seasons during which they are produced. Drying, salting, pickling, these were the first methods used to make harvest time last twelve months in the year. And finally, about a hundred years ago, canning.

Napoleon was really responsible for the beginning of the canning industry. Not in a scientific sense, for an Italian priest named Spallanzani and a French scientist to whom the whole world is indebted, Louis Pasteur, laid the groundwork for the scientific study of food preservation. But in a practical sense, the Little Corporal was the motivating power.

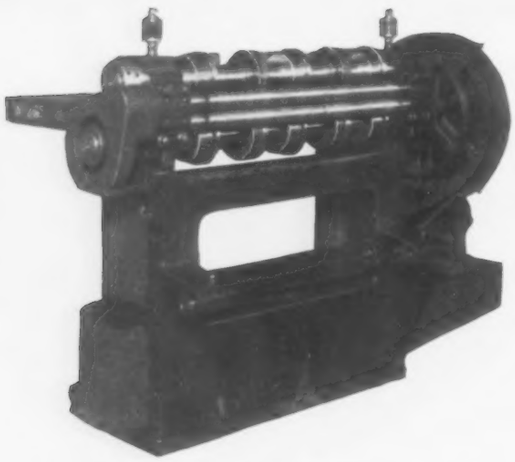
The sailors in his fleet were unable to stay on shipboard for long periods without succumbing to disease: scurvy and scorbutic complaints. And so the Emperor decided that salt meats and dried fruits were insufficient for a healthy diet. Thereupon the government of the First Republic offered a prize of 12,000 francs for the discovery of a way to keep foods fresh for long periods after preparation.

Nicholas Appert, who was making pickles and preserves in France before the Terror and continued to make them after the downfall of the Emperor, won that prize in 1809 and started the canning industry on its way. But Appert's foods were preserved in glass bottles and jars. It was not until the following year that an Englishman by the name of Peter Durand took out a patent for a receptacle made of tin, which he called a "tin canister." Long use of the abbreviation "tin can's" has changed Durand's canister into the can of today.

The principles laid down by Appert are still the



The Standard Sizes of Fruit and Vegetable Cans. From left to right, No. 1, 2 11/16 in. x 4 in., holding 11 oz.; No. 1 Tall Alaska Salmon, 3 in. x 4 11/16 in., holding 1 lb.; No. 2, 3 7/16 in. x 4 9/16 in., holding 20 oz.; No. 2½, 4 1/16 in. x 4 11/16 in., 28 oz.; No. 3, 4 1/4 in. x 4 7/8 in., 33 oz.; No. 10, 6 3/16 in. x 7 in., holding 6 lb. 10 oz. The No. 1 Tall Alaska Salmon, which was formerly used only for fish, is now being extensively used for California fruit. The No. 3 size will probably be eliminated in favor of the No. 2½



The First Step in the Manufacture of a Tin Can. This "Bliss" slitter cuts the sheets of tin plate into exact sizes for the body-maker or the top and bottom press. One slitter will provide material for two or three "lines" of can-making machinery

basis of the canning industry, though the pressure cookers and the high temperatures of the modern cannery were little dreamed of by the Bordeaux pickle-maker. Those principles were brought to the United States by Ezra Daggett and Thomas Kensett, who canned fish in New York in 1819, and by William Underwood, of Boston, who put up fruits as early as 1820.

But the growth was slow. Glass containers were not very satisfactory and tin cans were hard to make and slow in the process. Sheets of tin plate, though the tin coating was over an iron plate in those days, were cut laboriously with hand shears, the tops and bottoms were painstakingly soldered on by hand and a can maker who could turn out 60 cans a day was considered a marvel.

Not until General Grant sent out his call for more and better canned foods during the Civil War, did the canning industry really get started. With the old type of hand made cans, any great increase in production was impossible, yet the armies must have more preserved and precooked food. And once more war time necessity mothered the invention of machinery that was to create a gigantic industry.

First came better ways of cutting the round tops and bottoms and bending over the edges. Dies operated by foot power, or dropped from the ceiling, were used in place of the hand shears. Then improved machines for soldering, dipping the cans into a molten solder bath and saving countless hours of effort. Finally improved methods for attaching bottoms and testing the finished cans.

By 1885, can making had really become a separate industry, instead of a necessary evil conducted in hand with the various canneries. Machines for can making were first used in an individual can factory by Smith & Weeks, in that year. By this time steel had come into general use instead of iron, for the body of the tin plate. Capt. William Jones, one of Andrew Carnegie's lieutenants, is credited with the introduction of soft Bessemer steel for tin plate.

American can makers were not using much American tin plate, however. The Welsh industry was too strongly intrenched. In 1892, the first year for which tin plate production in this country was officially reported, the entire output was less than 20,000 tons.

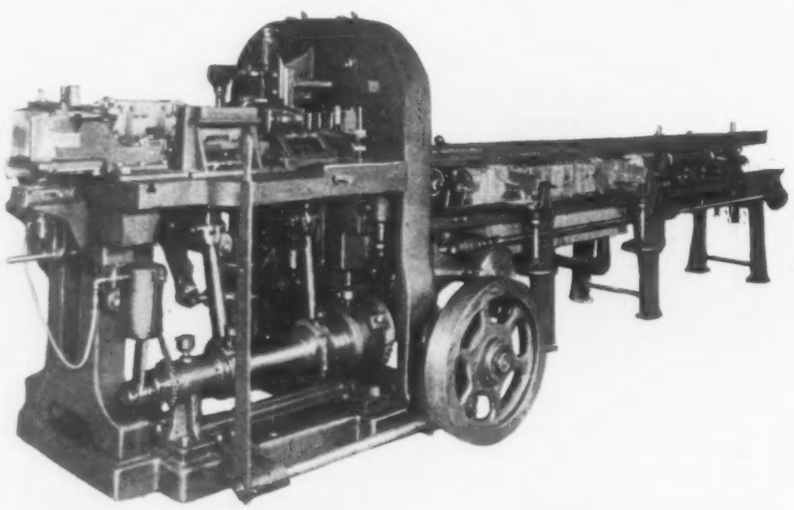
Then the McKinley tariff put up the bars against imported tin plate and the American manufacturers came into their own. For a time the Welsh industry suffered severely from the loss of the business on this side of the Atlantic, but British producers turned to other export markets and enjoy a very considerable prosperity today. For some time it was believed that Welsh plate was superior in quality to the American product, the former being carefully made by skilled workmen whereas the American industry laid its faith in automatic production machinery. Within the present year, however, a group of Welsh production men have visited the United States in order to learn our methods with a view to incorporating them in the mills on the tight little isle.

Up to the end of the nineteenth century, all cans were made with the familiar solder seam and soldered cap or top. But there were objections to the soldered tin. In the first place solder was expensive and it was not uncommon to see an eighth inch of solder on the top of a vegetable can. In the second place, the cans had to be cleaned with acid, in prepartion for the solder, and labor leaders who saw their influence waning with the growth of automatic machinery, spread abroad the idea that this acid washing injured the foods that might go into the can and made them poisonous. Thirdly, the solder can was hard to use in packing fruits and whole vegetables, for the aperture in the top of the can left for soldering was too small to permit whole pears or peaches to be inserted without bruising.

Abroad, the Europeans had not been backward in experimenting with this valuable invention of the tin can, and a German, Max Ams, developed what was known as a solderless can. The airtight qualities of the can were provided by a tight joint between the edge of the seam on the top and the body of the can. But it remained for an American, George W. Cobb*, to perfect after a long period of discouraging experimentation the idea of a solderless can and make it work so well that the old soldered can is, today, practically out of existence, save for the condensed milk container.

The development of a paper gasket, to go between the crimped or lock-seamed edges of the top or bottom

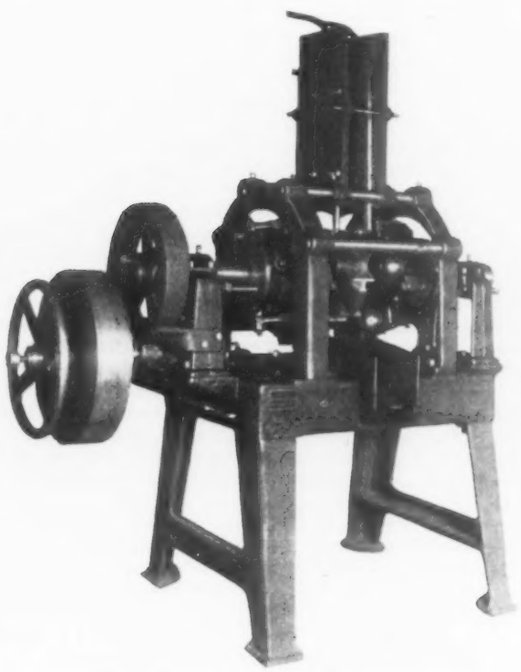
*Now general manager of sales, American Can Co., New York.



From the Slitter the Trimmed and Cut Sheets Are Fed to This "Bliss" Automatic Lock-and-Lap Seam Body-Maker, Which Makes Round, Square, Oblong or Oval Cans. The sheets are notched, formed, bumped and soldered automatically. Only a thin strip of solder is used as compared with the heavy layer familiar twenty years ago

and the body of the can, was the practical solution which brought about the present vogue of the so-called "sanitary" can using no solder whatever. In some sanitary cans a rubber gum mixture is used in place of the paper gasket to form a tight joint.

The sanitary can not only made it possible to pack whole fruits and vegetables without bruising them—it gave an immense impetus to the consumption of



On This Round-Can "Bliss" Double End Flanger, the Cylindrical Can Bodies Are Given a Flange at Each End to Prepare for the Top and Bottom of the Can. Both ends are flanged simultaneously

canned goods. With the beginning of the twentieth century, the use of cans or tin containers, for other than strictly food products, showed a steady increase. Tobacco, talcum powders, teas and coffees, began to be packed in airtight tins, always lithographed, of course, in attractive colors.

Today the number of non-food products packed in tin beggars description. Shoe blacking, paint, lubricating oil, candy, cigars, handkerchiefs, writing paper—almost every article small enough to get in a tin can has been packed in tin-coated steel containers.

But the bulk of the can production of the country is still consumed for food products, fruits, vegetables, soups and fish.

For non-food products, there are hundreds, perhaps thousands, of shapes and sizes. Tall thin cans for toilet preparations, thick squat ones for ointments, huge square containers for tobacco, flat round ones for candy. No standard styles or shapes, save, perhaps in the pocket tobacco tin. And the Government, in its campaign toward industrial economy through standardization of products and elimination of wasteful odd sizes, has directed its efforts to the food containers.

The illustration on page 331 shows the current standard sizes of tin cans in use by food packers in all parts of the country. The No. 3 size, for example, is so close in size and capacity to No. 2½ that efforts are being made to eliminate the former. Practically no No. 3 cans are in use west of the Mississippi, and the Maryland canners and packers will probably see the economy in filling a No. 2½ can rather than a slightly larger No. 3.

Out in the West the "tall salmon" can, shown between the No. 1 and the No. 2, has taken hold very strongly and more of this size will probably be made from now on. The National Canner's Association is now engaged in a program for eventual standardization of all food containers, and the establishment of an accepted definition as to cubical capacity, dimensions, and type of construction.

It is hoped that through a campaign of education, packers and canners may be induced to see that elimination of odd sizes—there are about 100 types in use to some extent for food today—will result in material savings to the maker of cans and consequently mean a lower price than would otherwise be possible.

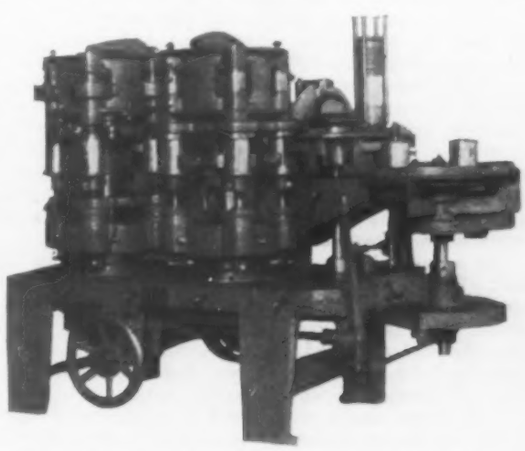
Standardization would mean a saving for the tin plate maker, as well, for today the can manufacturer to avoid waste orders his raw material in sheets of just the right size for his punching and slitting machines. It is said that the amount of standard 14 x 20-in., 100 lb., tin plate sold for can manufacture is negligible, while variations from this or odd sizes are in constant heavy demand. One large maker gives the following sizes as representative of the bulk of tin plate purchases: 21⅝ x 28⅜; 25¼ x 28⅛; 24¼ x 25½; 21 x 27⅞; 25¼ x 27⅛; 22⅛ x 29⅜; 24¼ x 28⅞ and 22⅞ x 29⅛ (all in inches).

Aside from the saving inherent in elimination of material waste, it is important to note that the greatest economy lies in the possible saving of time now lost in changing a line of machines from one size to another, a process that may take from five to ten hours under good circumstances. When it is remembered that modern equipment can produce close to 300 cans a minute, the loss over a five-hour period is apparent.

The nature of the canning business makes it evident that standardization cannot achieve the savings here that it has accomplished in certain other lines, but when 4,500,000,000 cans of foodstuffs are consumed in the United States every year, it will be seen that the reduction of the number of styles of cans in use from 100 to say, 50 or 60, will effect large savings.

The rapid growth and present size of the canning and packing industry might lead to a belief that the industry has reached the point of stabilization, but a closer study of the figures shows that this is far from the truth.

Take beans, for instance; ordinary baked beans. In 1899 the people of this country ate, or bought, about 33,600,000 cans of baked beans. That spelled the doom of the old family beanpot with the chunk of



The Cans Are Now Ready for This Double Seaming Machine Which Forms the Air-Tight Joint at the Bottom of Empty Cans or the Top of Filled Cans. Every machine in the "Line" of can-making equipment must keep up with the other units in order to secure a 300-can-per-minute output

pork. Five years later the national taste for baked beans had grown until some 60,000,000 cans were consumed. In 1909 the canners of beans sold 84,000,000 cans. By 1914 the total reached 213,600,000.

During the war the figures mounted to 355,200,000 cans of baked beans, enough to girdle the earth with a comfortable margin left over. But since the unusual

war demand could not be maintained, the 1921 total was 271,200,000. Last year the bean pack came close to the 400,000,000 can mark!

This means more than a growth in the size of the bean canning industry and a consequent increased demand for cans and tin plate. The per capita consumption is gaining. People are eating more canned beans each

This Tester Takes Cans Through a Chute from the Double Seaming Machine, Automatically Clamps and Charges Them With Compressed Air and Submerges Them Under Water. Bubbles denote the presence of leakers, which are thrown out. This tester will handle about 120 cans per minute

year. In 1899 the per capita consumption of canned beans was less than half a can per person per year. In 1904 the per capita consumption had risen to 0.72 can per annum. By 1909 the country was using almost one can a year for every person. 1914 shows the per capita consumption at *more* than two cans a year. Leaving out the war period when the enormous quantities of canned goods used in France destroyed the comparative value of the figures, we find that in 1921 the average American was eating canned beans at the rate of 2½ cans annually. Last year the consumption was over 3 cans per year per person.

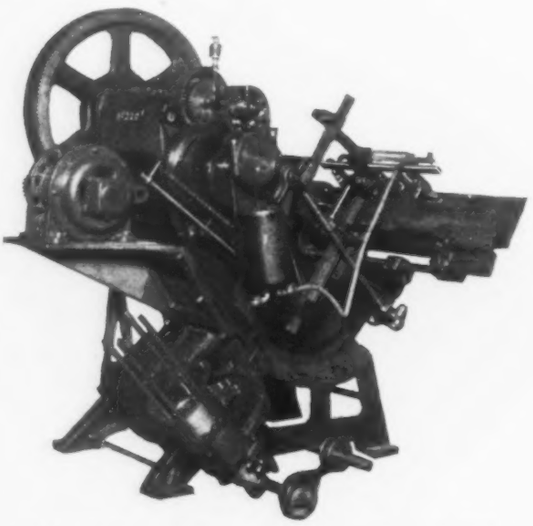
In a general way, the case of canned beans is typical. In certain lines the per capita consumption has shown little increase due to the fact that new canned goods of a like nature have been put on the market recently and absorbed the increased demand without affecting the older business. But when the "Big Three," tomatoes, beans and corn, each run to nearly half a billion cans a year, there is considerable opportunity for the expansion of the trade in canned spinach, peas, asparagus, pears, peaches, pineapples, sardines, milk and all the tempting articles so carefully guarded by the thin gray wall of steel and tin which we call "can."

With 115,000,000 people in the United States using about 5,000,000,000 cans of food a year, the average consumption is less than one can per week per person. Surely the "saturation point," so much discussed by economists, has not been reached in this industry. Consumption of tin plate has jumped from less than 1,000,000,000 lb. in 1904 to well over 3,000,000,000 lb. last year—indicating an even greater per capita growth than that of the can industry. The use of miscellaneous containers for oil, tobacco, etc., has, therefore, increased more rapidly than the use of tin cans for food containers.

Moreover, there is this hopeful fact to remember. These United States are the greatest canned food consumers in the world. Yet even here we eat less than one can per week per person, and there are many countries, especially those lying in the tropic zone, which must eventually come to a wider use of canned foods. It does not need a Canned Foods Week to explain to the South American the advantages of ever-fresh vegetables and fish and fruits.

No, the canned goods industry—and as a consequence, the can making business and the manufacture of tin plate—is yet in its infancy. Every year sees the work of Pasteur and Appert carried to a more scientific conclusion. Foods which used to affect the tin lining of the can by reason of their acid content, are now packed in enamel-lined cans and their flavor is as fresh and the color as bright as on the day they were packed. The sanitary can has done away with troublesome solder. Machines and methods have been so carefully developed that the contract of a leading company specifies allowance of claims made when there are more than two faulty cans in each thousand. The old prejudice against canned foods has been pretty well dissipated. Bacteriologists have determined that the more or less mysterious vitamines are unaffected by seclusion in cans.

In the ruins of one of the houses uncovered in Pompeii, a sealed jar of preserves was found some years ago. And after lying for centuries under the ashes of a volcanic explosion, the contents of the jar were found to be in good condition. Were one of the 100,000,000 cans which will be sold this week over the counters in this country to be buried in ashes and kept free from undue moisture, the contents would probably be just as fresh in 2025 as they are today.



The Automatic Top and Bottom Press Which Cuts and Forms the Tops and Bottoms. The strips of tin plate, slit to proper width, are placed in the holder and automatically fed to the die. An edge curling device to prevent "nesting" of the tops is attached to this "Bliss" press

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"Building and Home Ownership" is the topic of the Aug. 3 issue of the *Bethlehem Review*, which describes methods of company assistance through which 3400 Bethlehem employees have purchased homes valued at $13,000,000. The company furnishes architectural, engineering, financial and legal assistance and advice, provides a life insurance policy at a low rate and arranges for retiring the mortgage through monthly payments a little higher than local rents. The aid is applicable to buying an existing house, building a new house or improving a house already owned or the grounds around such a home.

Labor Federation Out of Politics

Endeavoring to Avoid Another Foster Debacle—Will Control Its Own Destinies and Eschew "Third" Parties—Memory of Steel Strike Still Rankles

WASHINGTON, Aug. 3.—The American Federation of Labor has announced in no uncertain terms that it has returned to its original moorings and again anchored itself to a non-partisan political policy.

In short, it will resume its old practice, by which it built up political strength, of urging support of those candidates which the Federation considers most sympathetic toward organized labor. The return to its first love is made by the Federation in the form of a virtual acknowledgment, without specifically saying so, that when it strayed from its old policy by supporting the LaFollette candidacy on partisan lines it made a grave mistake. There were many within and outside organized labor circles who at the time pointed out that labor had made a blunder, and surprise was expressed that the late Samuel Gompers, as president of the Federation, had sanctioned the departure in its policy. He was credited as being too astute as a labor politician to support such a plan and generally his position was explained on the ground that radicals in organized labor had forced a change.

Memory of Steel Strike Rankles

But, under the regime of President Green, the Federation has turned back to the old order. While this move was approved at the El Paso convention last year, the question had been more or less dormant until recently. It has been stirred up in a number of ways that some think may have particular significance in the threatened anthracite coal strike situation, a situation which, it has been intimated, might extend to the bituminous fields, if not to other lines.

Organized labor, it is believed, does not propose to let moves it is making or may be contemplating turn to another farce such as eventuated in the 1919 steel strike, when Foster, the radical, threw himself into the breach, organized followers and put such a scare into the so-called conservative leaders of organized labor as to grasp the reins and go on a temporary rampage of power. While it was a case of Foster and his men marching up the hill and down again, the lesson was heeded by organized labor, which evidently has found that, if it is to keep control of its policy, it must not let a rank outsider "bore from within." At the same time, organized labor apparently realizes that, if it is branded with the term of "radical" by letting radicals dominate it, or by committing itself to a radical political party, its power will quickly wane.

It is from this view that significance was seen in the recent reiteration from Federation headquarters that it would not tolerate membership of communists or other "reds." They were told either to stick to the tenets of organized labor or to move out of its bailiwick.

To Support Only Candidates Friendly to Labor

Now on top of this comes the announcement that "a strenuous non-partisan political campaign during the Congressional elections of next year was approved today (Aug. 3) by the Executive Council of the American Federation of Labor." The report of the Executive Council, the statement says, will be made to the convention which meets in Atlantic City Oct. 5. Immediately after that convention the council "will enter the various campaigns with the purpose of supporting those who can be depended upon to be true to labor."

After thus letting the cat out of the bag part way, the statement makes a frank confession that organized labor made a blunder in assuming a strictly partisan attitude in the 1924 election. "While in the 1924 election labor deviated somewhat from its former non-partisan political policy, the El Paso convention declared that 'for the American Federation of Labor to be true to its mission it must be as free from political party domination now as at any time in its history.' This means that the American Federation of Labor non-partisan political policy in the future will be along the usual definitely-outlined plan."

No More Third-Party Support

The announcement of the Council goes on to state that no aid or comfort will be given those who seek to launch third-party movements, and in emphatic terms the council makes it plain that organized labor will endeavor strongly to hold its fortunes in its own hands, but it will at the same time accept support that may be offered it.

"In conducting all non-partisan political campaigns, the American Federation of Labor will maintain control within itself of the decisions to be made and the procedure to be followed," it is declared. "The Executive Council, however, believes that it should accept the support that is freely given by any group that has for its purpose the carrying out of the non-partisan political policy of the American Federation of Labor."

The statement outlines plans to conduct an intensive educational campaign to aid non-partisan voters. It also declares that "All labor is reminded * * * that the non-partisan political policy has passed through the crucible of experience and has proved to be the best plan yet adopted for labor to voice itself politically.

Non-Partisan Policy to Prevail

> "Since the non-partisan political policy has been followed, many independent or third-party movements have come and gone. Generally they existed only for one election.
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> "The people generally are beginning to realize that hide-bound partyism does not benefit them," declared the Executive Council. "All too frequently they have learned that pledges in party platforms were not always respected, but were used simply as a stepping stone to office. The Executive Council believes that, as a result of its non-partisan political policy, the launching of third-party movements has been proved wasted effort and injurious to the desire to elect candidates with favorable records. The 1922 and 1924 political campaigns definitely determined this fact. Experience therefore has taught labor that, to be successful politically, it must continue in the future as in the past to follow its non-partisan political policy."

Another feature of the declarations is that an active campaign to interest women wage earners and their sympathizers will be carried on during the primary and election campaigns. "Since 1906, 208 laws urged by labor have been enacted and several hundred detrimental to labor and the people defeated."

The Gary Tube Co., Gary, Ind., Western subsidiary, National Tube Co., now has three buttweld and two lapweld pipe furnaces as well as its seamless tube plant in operation. When completed, this plant will have five buttweld and four lapweld pipe furnaces and a seamless unit, with a monthly capacity of approximately 35,000 tons of tubular goods.

The Wheeling Steel Corporation is electrifying its sheet mill plant at Martins Ferry, Ohio, in connection with which it has bought from the General Electric Co. a 1200-hp. motor with control and two 750 kw. motor generator sets with automatic substation.

Conveyor System Cuts Costs

Saving of 50 Per Cent in Floor Space Through Introduction of Improved Production Methods in Plant of Interstate Foundries, Inc.

A REDUCTION of over 50 per cent in its foundry floor space without cutting down its molding capacity has been effected by the Interstate Foundries, Inc., Cleveland, through the installation of continuous power driven conveyor equipment for handling molds, flasks, bottom boards, castings and sand, the introduction of improved production methods and the general remodeling of the plant with the view of reducing labor costs to a minimum and bringing the foundry up to the highest point of efficiency.

Formerly the plant consisted of two independent foundry units occupying separate buildings. One of these foundries has been made into a continuous foundry and the older foundry unit, the larger of the two in floor space, has been converted into a manufacturing department for machining castings and for assembly work.

The outstanding feature of the remodeled foundry is the provision of two continuous molding and pouring units with conveyors for handling the molds and flasks and a new sand handling system. The method of handling work on the conveyors differs from that used in a number of other continuous foundries having conveyor equipment in that there is no transferring of flasks from the end of one conveyor to another, requiring overhead handling equipment and increasing the labor costs. In other words, there is one continuous movement of molds and empty flasks on a single conveyor.

Can Be Used for Wide Range of Work

While most molding units with conveyors are designed for handling molds for one casting, such as automobile cylinder castings and other foundry work that can be put on a large production basis, the molding units of the Interstate foundries are more flexible in character in that they can be used for a wide range of work and can be used for different kinds of molds at the same time.

Each unit consists of two parallel conveyor tracks that circle at each end, making an endless conveyor. The molding machines are located on one side of the conveyor, pouring is done at one end and the molds are shaken out at the opposite end. The completed molds are placed on the conveyor at the sides of the machines on which they are made, moving along to the end of the conveyor and around the end loop to the pouring zone and are poured while the conveyor is in motion. The men who do the pouring stand on a platform at the side of the conveyor or on the conveyor itself while pouring the molds. The molds have time to cool while moving from the pouring zone down the outside conveyor track to the shake-out.

A shake-out grate, 6 x 8 ft., is located between the conveyor tracks on a level with the conveyor and there is also a shake-out grate on each side of the conveyor on the foundry floor level. A long handled fork is used for handling piston and other small molds from the conveyor to the grate on one side. The fork is suspended from a chain attached to a beam above and hangs about on a level with the flask. The two prongs of the fork are swung beneath the lugs on the ends of the flasks and the flasks are lifted by lowering the end of the fork handle. Then the handle is jerked backward about 2 ft. and the back of the fork strikes a

Shake-out End of the Conveyor With Shake-out Grates at the Sides of and Between the Conveyor Lines. The picture shows the fork which is used for lifting flasks from the conveyor, shaking out the mold and returning the empty flask to the conveyor. After being shaken out the castings are thrown into the truck on which they are conveyed to the tumbling mills

The Molders After Making the Molds on the Machines (Below) on the Left Pass Them on the Continuous Conveyor Directly Back of Them, and the Conveyor Carries the Molds Around to the Pouring Zone at the Lower End of the Bay, Where They Are Poured While in Motion

Another View (at Right) of the Conveyor Showing the Pouring Zone. The molds are placed on mold carriers attached to the endless conveyor chain and slide along on the conveyor rails, and are poured while moving

short section of steel beam extending perpendicularly from the floor. This motion is repeated two or three times until the sand and castings are shaken from the flask. Then the fork drops the cope and drag parts of the flask back on the conveyor on which the flasks complete their circuit back to the molding machine where they are taken off. It will be seen that with this method of operation the flasks are kept on the conveyor except when the molds are being made and shaken out.

Molders' Efficiency Greatly Increased

The two duplicate conveyor units are 240 ft. long. There is a clear space of 6 ft. between the conveyor tracks of each unit in which cores and surplus flasks are stored. There is a clear space of 25 ft. between each conveyor unit or sufficient for two parallel rows of molding machines, ten machines in each row. The molds made on one row of machines are handled by the conveyor adjacent to these machines. As the distance between the molding machines and conveyor track is only sufficient to provide adequate space for the machine operators, the molder is relieved of much handling work, which is limited to lifting the mold two or three feet from the machine to the conveyor, and consequently the molders' production is increased. It is claimed that one molder can do from two to three times as much work as he did with the former foundry arrangement.

A crane runway with a 10 ft. span extends lengthwise over the molding machines and loading side of the conveyor. This will be equipped with hand-operated trolleys carrying chain hoists and electric or pneumatic hoists for handling molds that are too large to be moved by hand. Overhead handling equipment will also be provided over the shake-out grates for handling the heavier flasks and castings and electric vibrators will be provided over these grates for shaking out the castings.

Bottom Boards Eliminated

The mold conveyor is of the endless chain type. It is provided with perforated cast iron mold carriers, 30 in. wide and 48 in. long which are attached by swivel joints to the drop forged conveyor chain. These carriers slide along on the rails of the conveyor. The carriers are on 6 ft. 6 in. centers. The conveyor is

driven by a Miller-Hurst variable speed power unit and has a speed range of from 4 to 12 ft. per min. It will handle flasks 30 to 48 in., or the size of the carriers, but if small molds are being made, several flasks are put on each carrier. On automobile work one crank case mold, one cylinder mold, two or three cylinder head molds and six piston molds are put on one carrier. In making cylinder molds the drag half as well as the cope half is barred so that the conveyor carrier can be used as a bottom board. As bottom boards are usually handled seven times in making the mold, considerable saving of labor is effected in eliminating the bottom boards.

Metal from the cupolas is handled over a monorail system to the pouring zone of the conveyor in bull ladles of 1500 lb. capacity and large molds are poured directly from these ladles. Small molds are poured from hand ladles that are filled from the bull ladles. The pouring gang for each conveyor consists of three or four men and the same number of men is required for the shaking out.

Iron is melted in an 84 in. cupola lined down to 56 in. The foundry also has a larger cupola that is too large for the new plan of continuous operation. A third cupola, the same size as the one now used, is being erected and when in operation will permit a wider range of mixtures as well as increasing the melting and molding capacity.

Castings Not Piled on Floor

A saving of labor is effected in the method of handling castings which at no time are piled on the foundry floor but are handled in trucks to the various points of operation. From the shake-out grates the castings are thrown on a lift truck with the side dump body of 1 to 2 ton capacity that is placed at the side of the shake-out. Alongside is a similar truck for handling the sprues. From the shake-out the castings are trucked to the tumbling mills and then to the grinding machines, being dumped back into another truck after each operation. Then they are passed from one truck to another while being inspected. Following inspection, they go to cars for shipment or to the manufacturing department. Electric tractors are used for handling the trucks.

The new mechanical equipment occupies only about one-third the floor space, leaving the remainder for miscellaneous molding work on the floor.

A conspicuous feature of the foundry is the equipment provided for the thorough conditioning and tempering of molding sand. It is pointed out that some systems in which sand has been prepared and conveyed mechanically have not proved thoroughly satisfactory because of improper preparation. The sand for both molding units is conveyed and prepared by one sand handling system. The sand from the shake-out grates of the two conveyors passes onto belt conveyors moving at right angles with the mold conveyor to a point between the two molding units. From here another conveyor elevates it to another cross conveyor which carries it over a magnetic pulley and drops it on a screen. It passes through the screen to a paddle mixer where it is tempered. From the mixer it passes through a double beater which deposits it on another flight conveyor which elevates it to a storage and tempering bin of 90 ton capacity from which it is drawn as required into a conveyor that deposits it into hoppers above the molding machines. Chutes from each hopper supply two adjoining molding machines, one in each row. The sand handling and mixing equipment has a capacity of 60 tons per hour.

Night Crew Prepares for Day's Work

The foundry is operated on a 9-hr. day but can be readily changed to two 8-hr. shifts. The molders start work at 6.30 a. m. and get the section of the conveyor between the machines and the pouring zone filled up with molds by 7.30 when pouring begins. At night after the molders quit work, all the molds remaining on the conveyor are shaken out and everything is ready for the next day's start. The output for each conveyor in 9 hr. is from 75 to 100 tons of castings. The total daily capacity of the entire foundry is 200 to 250 tons of castings.

Mention has been made of the conversion of one of the company's foundries into a manufacturing plant. This is being devoted in part to the manufacture of a refrigerating machine for household use. The castings are made in the foundry and they are machined and the machine is completely assembled in the manufacturing department.

Interstate Foundries, Inc., is a reorganization of the former Interstate Foundry Co. and its president and manager is James F. Miller, who for 14 years was superintendent of foundries of the Ford Motor Co. He also supervised the designing, building and equipment of the large foundry at the River Rouge plant of that company. Profiting by long experience gained in production work in the Ford foundry, Mr. Miller planned the new arrangement as well as the mold and sand handling equipment in the Interstate plant. Both the mold conveying and sand handling equipment were designed, built and installed by the Miller-Hurst Corporation, Detroit, of which Mr. Miller is also president. Other officers of Interstate Foundries are Charles G. Heer, secretary, and L. A. Murphy, treasurer.

Machine Tools to Be Exhibited in Actual Production

Several of the latest developments in machine tools will be shown at the fifth annual machine tool exhibition to be held under the joint auspices of the New Haven section of the American Society of Mechanical Engineers, the department of mechanical engineering of Yale University and the New Haven Chamber of Commerce, at Mason Laboratory, Yale University, Sept. 8 to 11. The machines will be in operation on actual commercial work and undoubtedly many of them will demonstrate new high production possibilities. Being conveniently reached from Boston, New York and Philadelphia, a large attendance is expected. The visitors at last year's exhibition numbered approximately 15,000.

Meetings have been arranged at which the technical side of the development of machine tools and machine shop practice will be presented, the technical meetings having been arranged by the machine shop practice division of the American Society of Mechanical Engineers. The executive committee of this division, which is headed by W. F. Dixon, works manager of the Singer Mfg. Co., and vice-president of the Diehl Mfg. Co., has designated Erik Oberg, editor of *Machinery*, a liaison member, and a balanced program of topics of outstanding current interest is being arranged.

Application has been made for reduced railroad rates on the certificate plan and those writing for hotel reservations are asked to send a copy of the letter to G. Holmes, 400 Temple Street, New Haven, who heads the entertainment committee.

Aluminum Co. of America Acquires Canadian Company

Stockholders of the Aluminum Co. of America and the Canadian Power & Mfg. Co. have approved a consolidation of the two companies under the name of the former. By the merger the Aluminum Co. of America acquires valuable lands on the Saguenay River, Quebec, Canada, and water rights and franchises sufficient for the construction and operation of a large hydroelectric plant, where a large aluminum producing plant will be constructed. At the expiration of a legal time limit, a meeting of stockholders is to be called to vote on the authorization of a new bond issue to provide for funds for the construction of the proposed Saguenay River plant.

Proposed Siberian Steel Plant

Extension of Steel Industry in Telbas, State of Tompsk, Where Iron Ore Meets Coal and Limestone

BY ALFRED PEARSON, JR.*

TELBAS is the name of the big iron field lying south of the Kuznets coal field, as shown on our map. The project of a steel mill in this place is an old and well-detailed plan. The full scheme is worthy of the attention of an empire builder. It embraces not only a steel plant and town similar to Gary, but the construction of a main line railroad, waterway improvements on a large scale, and some subsidiary industries, as well as the development of coal and ore mines and by-product plants.

Metallurgical industry here goes back beyond the dawn of history. According to legend, Genghis Khan obtained in this valley, the weapons for his memorable European raids. This is believable when one considers that the name of the district, translated into English, means "Blacksmiths' Valley," and further notices the large percentage of the local inhabitants who have the same surname, sufficient evidence of an ancient and widely spread industry, at least before the taking of surnames.

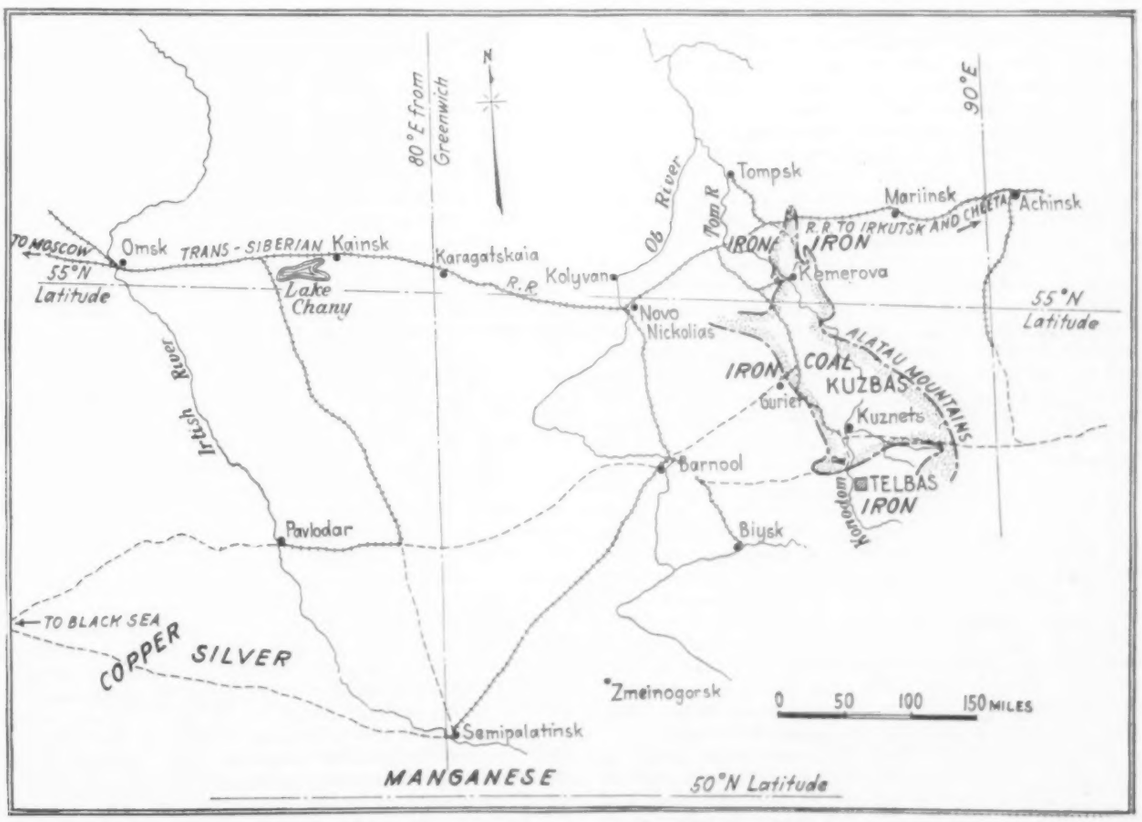
The iron industry, in historical times, begins with the construction of Gurief furnace by Catherine the Great, for a penal colony. Remains nearby indicate a still older plant on the same site, which used the power of the Ina River to operate some gigantic rolls. Gurief is a queer looking plant. The buildings are made from the local white marble, with walls about 10 ft. thick, one cross wall being 26 ft. thick.

Serious Work Started

When the Telbas development was decided upon, during the war, Gurief was picked to serve as a manufactory of the heavier machinery. With this purpose in view, many modern machine tools were installed here, mostly of American make, a Martin oven (open-hearth furnace) was built, so that steel billets could be produced, as well as pig iron, and an old rolling mill erected. This work is still incomplete, an additional $100,000 being required to finish it. This plant is now under the jurisdiction of the coal mining department, which uses it as a main repair unit, and it does also some commercial business. It undoubtedly, with the revival of the Telbas project, will be returned to its original purpose.

Work was started on the Telbas project in 1916.

*Consulting engineer from 1922 to 1925 to the A. I. C. Kuzbas, which operates the coal mines in the Kuznets basin, the Gurief iron furnace and the ore mines tributary to the latter. During this period Mr. Pearson was operating head of the Northern group of mines. He is a member of the American Institute of Mining and Metallurgical Engineers, has been engaged in mining engineering for 25 years, most of the time in western Pennsylvania and is now located at 2492 Scottwood Avenue, Toledo, Ohio.



Map of the General Region Surrounding the Kuzbas Coal and Telbas Iron Mining Districts in Siberia. The latitude is about that of Liverpool, while the field is on about the meridian of Calcutta, at 88 deg. East of Greenwich

The plan was to construct only one unit at that time, and extend as the market warranted. About 200 houses were built, together with the necessary preliminary structures. The events of the revolution stopped the work and, as there was a big shortage of houses at the coal mines, the buildings were torn down and moved to the mines, so the whole project has to be started again from the beginning. The plant proper was said to be the latest word in steel mill development, a duplication of an American mill. Plans which the writer saw bore the name of an American steel company. Doubtless these plans are now so obsolete that they will require complete overhauling.

The steel mill location is ideally placed, as shown in diagram, on the bank of a navigable stream which will not only supply condensing water but permit water transportation of raw materials and finished product, even for export, during one-half of the year. It is on the northern edge of the iron ore and on the western edge of the coal deposits intended to be used in connection with the plant. Nearby are also tremendous deposits of the highest grade steam coal.

Great Natural Resources

Total resources of the field are unknown, partly because the territory, where the geological formation is of a nature to yield metalliferous ore, is covered with a dense forest. It is known that the coal-bearing measures, covering a space 250 miles by 80 miles, are surrounded by normal formation throughout. Iron and other metals have been found at widely separated points on all sides, so it is reasonable to suppose that the portions known to contain extensive deposits are only representative of the whole.

Gurief has been operated on a hand-to-mouth basis; the engineers, being satisfied to know of a reserve for a few years ahead, each year doing enough prospecting to cover the depletion. At Telbas, however, in view of the enormous capital expense, prospecting of a more extensive character was carried out. The figure given for the reserve of the Telbas field proper is 50 billion tons of iron ore. The biggest body of ore there is a high-grade magnetic, although a large amount of clay iron-stone analyzing better than 45 per cent iron also was located, in small pockets.

This last is also characteristic of the country around Gurief, which has been supplied with clay iron-stone from nearby workings. At Gurief, however, there is no magnetic iron ore, but very high-grade limonite has been mined for a number of years within a radius of 50 miles and hauled to the plant by peasants in sleds during the winter months, when they are not busy at their farming and will work very cheaply. An iron ore, resembling the clay iron-stone, also is mined, containing 6 per cent of manganese.

One manganese ore field has been mined for a few years, about 60 miles north of Gurief, which the plant superintendent said yielded 75 per cent manganese. The writer offers no apologies for this story, as he saw so many mineral deposits of fabulous richness and extent in this region, that he is prepared to believe anything. One might mention in this connection a bed of coal of Admiralty standard, 120 ft. thick, and a vein of galena 7 ft. thick, which has been worked for four miles.

By-Product Coke Plant

It is interesting to note that Gurief furnace, due to a shortage of coke, has been smelting iron and even steel with these local coals. The big Volkovsky medium volatile coal was first used in the iron furnace, with first class results, but when the Martin oven was started it was found too soft and the low volatile Moshny from Prokopivo mine substituted. These both are very low ash coal, with only a trace of sulphur. The chemist described the phosphorus as being "only discernible and in quantity too small to estimate."

Besides the prospecting and engineering work in 1916, quite comprehensive experiments were carried out with the coal, to determine its characteristics and availability for coking. Bee-hive coking has been done at Angerska for a long time. Rectangular ovens were built at Altai mine and a very high grade of coke was produced for several years from the Kemerova measure seams, they being the ones found in the neighborhood of the proposed steel plant. The by-product plant at Kemerova was started at the same time, but not put into operation until 1923.

This plant is still operating along experimental lines only, although there is a ready market for its products. The coals used yield phenomenally high outputs of by-products, which in fact is the difficulty experienced in operation, as some mixture is required of lower volatile coal to get a coke of proper hardness. Very likely Telbas will not be so troubled with this factor, as it will not face the problem of long-distance transportation of coke, which the Kemerova plant has had to solve.

It has always been the opinion of the writer, in view of all the circumstances, that the Kemerova plant was primarily looked upon as an experimental plant, which should have all the coking problems solved before Telbas went into operation.

Subsidiary Materials

At Gurief a fire clay is found which is even superior to the product which previously had been imported from Europe for the Kemerova coke plant. The foundry makes its own fire brick and the management of the Kemerova plant, after testing the product, decided to use these bricks in future proposed ovens. A machine brick plant is located only a few miles from the Telbas site. The whole country is densely wooded with first growth larch, the wood used over a hundred years ago in the Gurief buildings.

Glass sand is plentiful. The only item which seems lacking is a good natural gravel, for, notwithstanding the deep gravel beds, none has been located nearby suitable for building purposes without washing.

Limestone already has been mentioned, some of it even reaching the grade of marble. So far as the writer observed, there is no good building sandstone, such buildings as have been constructed of it being in very bad shape in only a few years' time.

The management which undertakes the construction and operation of Telbas will have to be versatile, and will want to control all the various plants and deposits mentioned.

Transportation a Major Problem

The principal difficulty that will be experienced in carrying out the program will be the weakness of the railroads. As they are now unable to carry the full coal load, strenuous efforts will be required before the proposed steel plants get into operation. A branch line of the Trans-Siberian, which has been extended to within about 50 miles of the site of the Telbas plant, while usable, is in a terrible state of disrepair. The line to the plant and ore beds has been graded, requiring only the bridge superstructures and rails. Part of the original plan included a railroad from the Black Sea ports to the mill, and on through some undeveloped mineral fields to the East. This line has been surveyed, but no work done.

The Telbas plant will also have a waterway via the Tom River, which can transship onto the Trans-Siberian or go on by water via the Irtish to the Ural Mountains, also to the mouth of the Ob River, for export. Before the revolution these rivers were actively carrying freight, but at present the river fleet is in the same state of disintegration as all other Russian industry. This route is open for about six months in the year and ocean connections are maintained for four months.

In view of the tremendous distances materials have to be transported, the cost of construction will be very high on such as cannot be manufactured locally. Hence the importance of Gurief. In this connection it is of interest that practically every material of construction can be locally made or obtained. A cement plant has been in operation about 200 miles away, on the Trans-Siberian Railroad, which made a very satisfactory product, as the writer can personally testify, at about the price of cement in the United States. This plant has been shut down recently for lack of capital to permit advance production.

Revival of the Telbas project is caused by the seri-

ous shortage of steel and iron products in Russia. Two years ago the coal industry was the one which held the key position but, by the expenditure of much money and effort, it is now over-producing to about the same tune as the coal mines of the United States. The government now is planning a drive on the steel mills, similar to the drive on the coal mines.

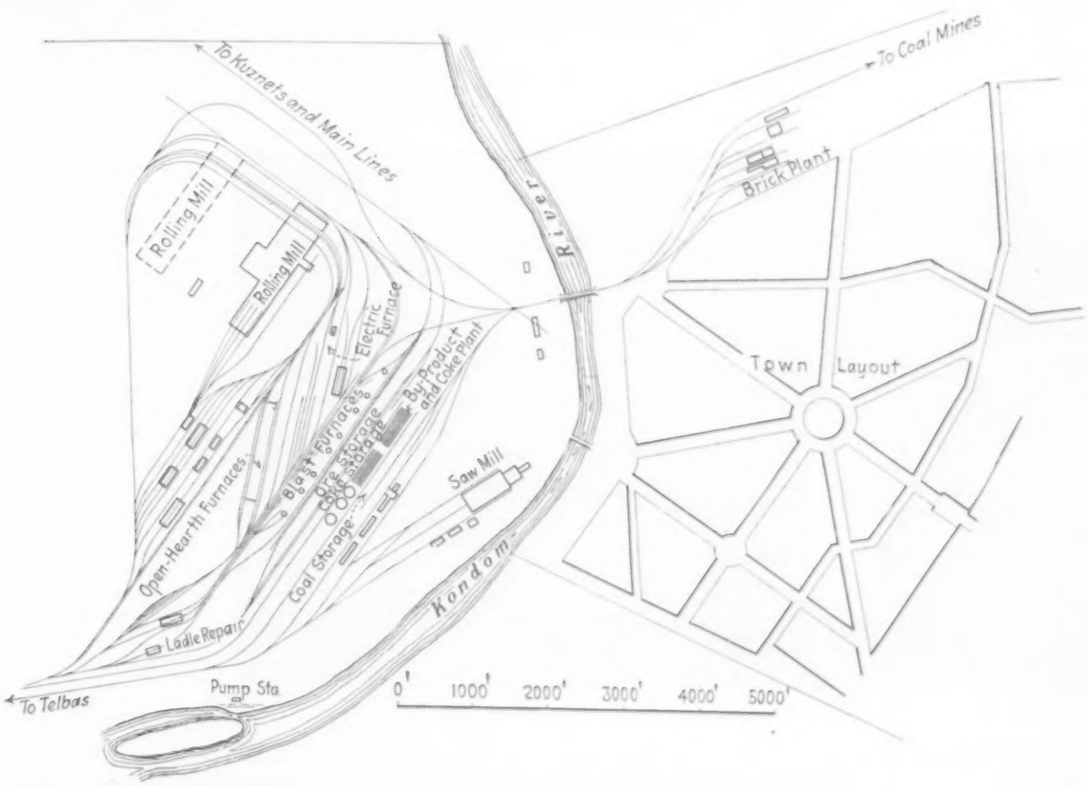
Russian Need for Steel and Machinery

At present only a restricted market is available for steel products in Siberia, but it seems as though both mining machinery and farm machinery could profitably be manufactured there. Even now the Gurief plant is utterly unable to supply the various types of mine machinery needed. The peasant today uses the most primitive tools, not from choice but from necessity. The writer found that the peasants desired not only ordinary farm tools but binders and even tractors. American models are highly regarded, and properly so.

An interesting sidelight on the richness of the country is given by the method of bargaining with the peasants for hauling gravel. The face of the pit is first squared up by company labor. The officials then load several gun shells with gold, which they shoot at the face. Bids are then asked on excavation and hauling, the amount of gold discovered by the peasant determining the price. If the final result were not satisfactory, the peasant would have long ago caught onto the trick.

The ore mines, also, are worked by the peasants on a contract basis. One is struck by the primitive methods of work, no machinery of any description being used.

The soil is productive, so the cost of foodstuffs is very low, contributing to the low price of labor. But, notwithstanding the low rates, the writer found it necessary to figure costs as high as in America, and to estimate time at three times as long, because of labor



As the Project Has Been Laid Out, the Steel Plant Lies in a Bend on the Left (West) Bank of the Kondom River, with an Attractive Townsite on the Easterly Bank. Railroad connections are shown

The present plants are in such a broken-down condition that it is doubtful if they can be "jazzed up" enough to catch up with the present needs of the country. So it is proposed to construct four new plants; two in the Urals, one in South Russia and the Telbas plant. It is reported that the government contemplates an initial appropriation of 100 million dollars. In view of the many places to put money, and the shortage of funds, one wonders how this scheme is to be carried out without outside assistance.

Telbas will not only have a monopoly of Siberian business but, in view of the fact that much of the coal used in the Urals must come from Kuzbas, it will offer some competition in the European market.

Working Conditions and Labor

The climate at Telbas is not so rigorous as the Siberian average. The charactertistic sub-arctic pine and birch forests are replaced by maples, oaks and larches. Winter temperatures correspond to the middle New England States, but without the raw, damp ocean winds. The local inhabitants, mostly Mongolian, provide a plentiful and cheap labor supply.

inefficiency. Famine in this locality has been unknown, although Russia as a whole expects a famine in some part about every five years.

Outside Concessionaires Needed

Once this work is seriously started, they will have to look to the outside world for both the capital and experts to carry it out. This should provide an opening for American enterprise, as both American machinery and industrial methods are highly regarded as Russia.

The Germans are making persistent efforts to capture both the Russian markets and concessions. They bid lower than Americans can, for they are fully alive to the advantage of the tremendous resources of Russia tacked on to their own machinery industry. It seemed to the writer that not only were American products more highly regarded than the German, but that the Russians fear the imperialistic tendencies of the German government. Because of these reasons, he is of the opinion that the United States can get its full share of Russian business, if it only seriously goes after it.

Electric Annealing of Steel*

Four Types of Furnaces Now in Operation for Aging, Normalizing and Annealing Castings

BY HAROLD FULWIDER

THE ferrous metals—iron, steel and their alloys—like most other metals, develop a degree of hardness when rolled, drawn, forged or cast. In addition to this quality, castings contain strains caused by uneven cooling in the mold and it is to relieve these strains and to impart softness to the metal that iron and steel are annealed.

The annealing of iron and steel is accomplished by heating the metal to temperature of from 1400 to as high as 1900 deg. Fahr., depending on the alloy, after which the material is slowly cooled down to normal temperature.

The following table gives the approximate annealing temperatures for iron, carbon steel and some of the more common alloy steels:

Metal	Deg. Fahr.
Iron castings	1200 to 1400
Iron castings, aging	1000
Carbon steel castings	1500 to 1650
Carbon steel castings, normalizing	1600 to 1700
Manganese steel castings	1750 to 1900
Carbon steel forgings	1500 to 1650
Carbon steel cold rolled sheet, strip, wire	1300 to 1650
Silicon steel sheet	1500

Until about four years ago, all commercial annealing was carried on in fuel-fired furnaces using coal, coke, oil or gas, and these methods are still in quite general use. In the past few years, however, there has developed in the metal working industries a recognition of the importance of more accurate and uniform heat treatment of metals, including annealing, ageing and normalizing.

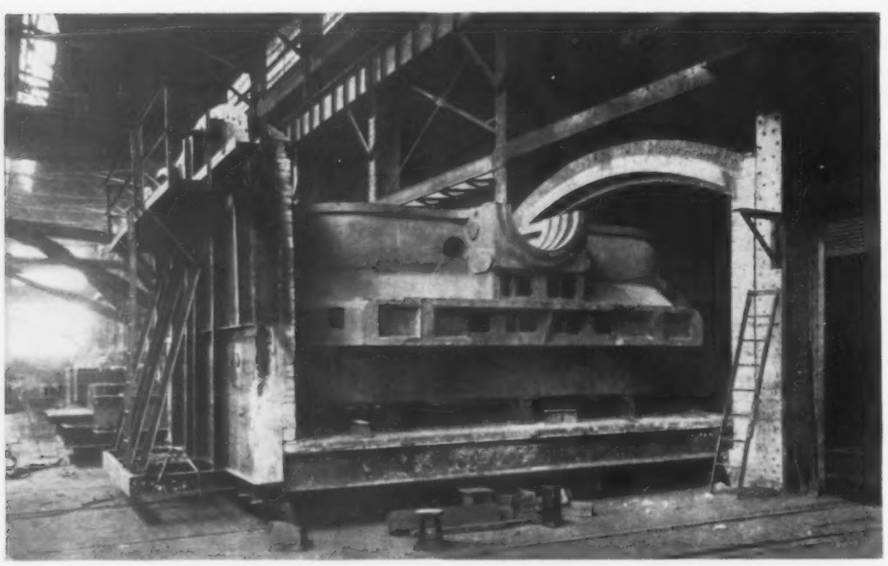
The tendency is now, where maximum quality and uniformity of product are desired, to give consideration to the electric furnace for these operations. The actual cost of the electric energy used will, in most instances, be higher than the bare cost of fuel would be, but this is frequently justified by the results to be secured. In general, the electric furnace gives a better and more uniform product with less loss from scale, and quite often savings are realized which result in a lower overall cost of product.

Some Advantages of Electric Heat

A properly designed electric furnace operates with a very uniform distribution of heat and at no time is the temperature of the heat source much above the annealing temperature. This means that the metal is heated through to just the right degree and will have the uniform grain structure which characterizes a perfect anneal. There are no hard spots to slow down machining operations and castings are less likely to break under strain and, as there is no overheating nor flow of air through the furnace, scaling will be reduced to a minimum.

The furnace temperature is controlled automatically and is maintained closely and accurately and this is accomplished with a minimum of attendant labor. Usually the annealing process may be carried out over night, thus permitting the use of off-peak power purchased at minimum cost. Night operation does not necessarily require night labor or attendance because the furnace may be charged late in the day, after which the power is turned on in the evening by a time switch which subsequently cuts off the furnace at the end of a pre-determined time period. The charge is removed in the morning when the men have returned to work. Often the same furnace is used during the day for other heat-treating operations.

Where the work to be annealed must be kept free from scale, as is the case with punchings, it is necessary to pack the steel in annealing boxes before loading into the fuel-fired furnace. These boxes are closed with a cover to exclude the air and, if made of iron, they are of heavy construction to resist the oxidation which results from repeated use. Boxes made of heat-resisting alloys have a longer life but cost much more.



Electrically Heated Car-Bottom Furnace Equipped With Ribbon Units on Side Walls and in Bottom of Car

*From a report prepared for and included in the power committee report of the National Electric Light Association, presented at San Francisco, June 15 to 19. The author is manager, industrial heating sales, General Electric Co., Schenectady, N. Y.

Car-Bottom Furnaces for Annealing Steel and Brass Castings

In either case, fuel is consumed in heating the boxes and, when it is realized that not infrequently the weight of boxes equals that of their contents, it is obvious to what extent these containers reduce the capacity of the furnace and increase the amount of fuel required for annealing.

The characteristics of the electric furnace permit a construction and method of loading which result in the furnace itself serving as the annealing box or container. Thus, the electric furnace eliminates the items of expense for containers, saves the cost of energy for heating the latter and gives greater productive capacity with less floor space.

There are other advantages for the electric furnace which are important, if somewhat intangible. Improvement of shop conditions is now generally recognized as beneficial to both employer and employee. The latter is appreciative and does better work and more of it, if the surrounding temperature permits him to work in comfort and the air he breathes is free from injurious gases and dirt. If conditions are pleasant, labor turnover, one of the most serious items of expense today, is reduced to a minimum or virtually eliminated. Probably the electric furnace does more to bring about good shop conditions than any other modern appliance, and this should always be given due consideration in determining the type of furnace to be adopted for heat-treating work.

Summarizing, the electric furnace for annealing gives uniform high quality of product, minimizes labor of attendance, reduces losses, gives greater productive capacity without increase of labor, saves the cost of annealing boxes and energy for heating same, and contributes greatly to the reduction and elimination of labor turnover. And it should be noted that the trade is beginning to demand electrically annealed iron and steel products.

The following is a brief description of a few typical installations where the electric furnace has been adopted on account of the advantages just enumerated.

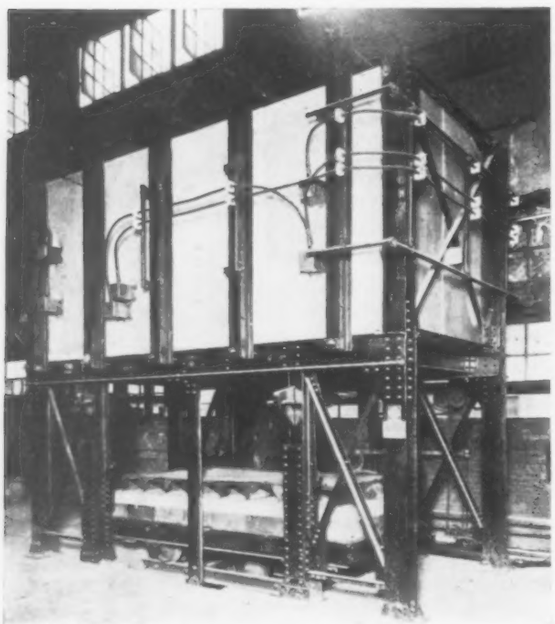
Aging Iron Castings

A manufacturing plant, confronted with the problem of aging large iron castings weighing upward of 50 tons and of considerable variation in section, found that, with a fuel-heated furnace of the size required for

Car-Bottom Furnace for Annealing Miscellaneous Steel Castings

such work, it was impossible to maintain a sufficiently uniform temperature throughout the furnace chamber. Accordingly, an electrically heated furnace (Fig. 1) of the car-bottom type was installed, equipped with ribbon units or windings located on the side walls and in the bottom of the car. The unit windings are so distributed as to compensate for door and end loss of heat, and uniformity of temperature is secured with less than one-third the variation encountered in the fuel furnace.

This furnace is 16 ft. wide, 28 ft. deep and 8½ ft. high inside, and has a connected load of 720 kw. The



Elevator-Type Furnace in Which a Car-Bottom Is Used for Loading

castings are heated to a temperature of 1000 deg. Fahr. The aging cycle requires, in this case, about 48 hr.; the power is on for from 12 to 14 hr. heating the charge to temperature, after which the power is cut off and the castings are allowed to cool in the furnace for 36 hr. when the charge is removed at a temperature possibly somewhat higher than 400 deg. Fahr.

An electric foundry producing both steel and brass castings from electric melting furnaces is also using the electric furnace for annealing its product. The installation (Fig. 2) consists of two car-bottom furnaces, each 5 ft. wide, 7 ft. deep and 4 ft. high, with a 120 kw. connected load. The steel castings are annealed at 1600 deg. Fahr. These furnaces were installed over two years ago, after inspecting various furnaces in other plants, and have been in continuous operation ever since with but minor repairs on the cars, doors and sand seal. The manager of this plant is satisfied that he has the best form of furnace for annealing his castings.

Another steel foundry has been using a car-bottom, electric furnace (Fig. 3) for about two years, annealing miscellaneous steel castings. This furnace is 6½ ft. wide, 9 ft. deep and 3 ft. high, with 200 kw. connected load. The average charge is about eight tons annealed at 1600 deg. Fahr. The illustration shows this furnace with a typical charge of castings of various shapes and sizes ready to be annealed.

Annealing Silicon Sheet Steel

One large manufacturer is now using 14 electric furnaces, having a total connected load of about 2200 kw. for annealing silicon steel sheets and punchings. These furnaces are of the elevator type (Fig. 4) in which a car bottom is used for loading. This form of furnace is supported several feet above the shop floor on structural steel columns and the car with its charge is run under the furnace and then elevated by means of a hydraulic hoist. Thus the charge is brought into the heating chamber and the bottom opening of the latter is closed by the car top with a sand seal. This type of furnace is more effective in excluding the air than the ordinary car-bottom type with the sliding door at the end.

The use of heavy annealing boxes required formerly with the fuel furnace has been entirely eliminated, the electric furnace itself serving as the container. There is saved in the cost of annealing boxes as well as their maintenance and the cost of energy for heating such containers. The capacity of the furnace is greatly increased with a material saving in floor space, and working conditions in the shop are vastly improved. Everything considered, the cost of annealing has been reduced approximately 50 per cent.

The work is now turned out free from scale and uniformly well annealed. One of the smallest of these furnaces is 7 ft. long, 2 ft. wide and 1½ ft. high, with 130 kw. connected load. Eleven heats of 3½ tons each are secured per week with an economy of about 11 kwhr. per 100 lb.

Standards for Shafting and Keys

Two dimensional standards dealing with cold-finished shafting, and square and flat shafting keys, recently approved as "tentative American standards" by the American Engineering Standards Committee, are being distributed by the American Society of Mechanical Engineers, the sponsor.

The standards cover machinery shafting from ½ to 6 in. in diameter and transmission shafting from 15/16 to 5 15/16 in. The recommended stock lengths for cold-finished shafting are 16, 20 and 24 ft. All tolerances are negative and represent the maximum allowable variation below the exact nominal size. The keys considered for these 60 standard shaft-diameters are either square or flat, and are to be cut from cold-finished stock and are to be used without machinery. The standard widths and heights and the corresponding negative tolerances are given.

In the development of these standards, which was begun in 1918, manufacturers, users and more than 300 dealers and jobbers, have participated. The standards for shafting and keys, known as B 17a and B 17b, respectively, are the first dimensional standards having national approval to be published in this country in the single sheet form. Copies may be obtained from the American Engineering Standards Committee, 29 West Thirty-ninth Street, New York. The price is 20 cents per sheet.

The sectional committee is working on formulas to guide engineers in the selection of the best sizes for transmission shafting for use under various conditions for loading. The chairman of the committee is Cloyd M. Chapman and the secretary is C. B. LePage.

South America's trade, with particular reference to the share of the United States, forms the subject of a 32-page booklet issued by the Chamber of Commerce of the United States, Washington. It deals with our exports to the ten republics of South America, both collectively and individually. The information is given by chief articles of export and import for the year 1923, with 1913 as a comparison. In some instances the date varies, but the comparison is carried between a recent year and one about ten years before.

Products of the Westinghouse Electric & Mfg. Co. are to be distributed in Japan through the Westinghouse Electric Co. of Japan, which has been organized under the laws of Delaware with a capital of $1,000,000. The officers of the new company, which is a subsidiary of the Westinghouse Electric International Co., are Guy E. Tripp, chairman; L. A. Osborne, president; E. D. Kilburn, vice-president, and I. F. Baker, managing director, located at Tokyo.

Life of Large Ingot Molds

Deterioration Due to Thermochemical Changes at High Temperatures—Composition and Effect on the Steel

BY J. H. HRUSKA*

AS a preliminary step toward a complete study of the deterioration problem of ingot molds, the writer undertook several investigations on large ingot molds in order to examine the influence of the high temperature corrosion on the life of the molds as well as to study the effect of the chemical composition of their metal upon the quality of ingot iron and steel produced.

The suspicion that some thermal or chemical actions take place to a considerable extent, even on the smallest water-cooled molds, is supported by an examination of the interior surface of every used or scrapped mold. These observations fundamentally affect our conceptions as to the origin of the occurring reactions or constituents and their behavior during the freezing and subsequent cooling of the steel, and—most important of all—to what extent, chemically and economically, they affect the quality of the ingot steel produced.

Method of Investigation

To investigate this subject, the writer examined the largest available ingots and molds because of the more convenient and distinct observations of all phenomena occurring on mold and ingot surfaces. Thus all conclusions outlined below refer to inverted pyramidal ingots and molds up to the largest sizes, octagonal cross sections and steel of a chemical analysis within the following limits:

	Per Cent
Carbon	0.25 to 0.50
Manganese	0.60 to 0.80
Silicon	0.15 to 0.25
Phosphorus	0.015 to 0.030
Sulphur	0.020 to 0.035

The writer has divided his working plan into three parts:

1. *The examination of molds before being used.*
2. *The examination of molds after use.*
3. *Tests on cooled ingots.*

A complete record of one of these tests, conducted on a mold of 160,000 lb. capacity and including the examination of a corresponding ingot, is discussed.

Examination of the Mold Before Use

The investigations conducted, particularly on the interior surface of the mold, included first an average analysis of its metal before the first heat was poured into it. The result was:

	Per Cent
Total carbon	3.52
Manganese	1.21
Silicon	1.68
Phosphorus	0.146
Sulphur	0.045

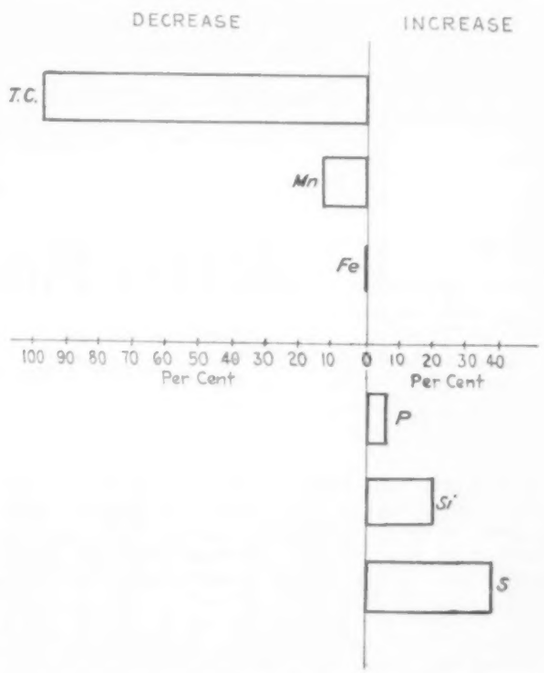
Examination of the Mold After It Had Been Used

The next samples were taken in approximately the same locations and under the same conditions after 58 heats were cast into this mold. The mold metal itself was deeply corroded and the metal surrounding these deteriorated spots showed, of course, an appearance entirely different from that before the first steel was cast into the mold. An average analysis of the blue-grayish mass showed the following constituents:

	Per Cent
Iron oxide, Fe O	95.32
Silica, Si O_2	3.42
Manganese oxide, Mn O	1.09
Total carbon	0.09
Phosphoric oxide, P_2O_5	0.28
Sulphur	0.049

A "chemical balance sheet" of the results obtained is given in Table I.

Considering the indicated results from a critical standpoint, there is, however, some reason to doubt particularly the origin of the increase of phosphorus and sulphur, whether this increase is caused by the physical and chemical changes in the mold metal alone or partly by the steel. To discuss whether or not one of these indicated factors is dominant is not the purpose of this paper. It might only be stated that both ingredients could probably not diffuse from the ingot steel because of their low percentages. The analyses of the basic open-hearth steel usually poured into this mold was always within the limits:



Decrease or Increase of Elements on the Interior Surface of Used Ingot Molds

	Per Cent
Carbon	0.35 to 0.43
Manganese	0.75 to 0.80
Silicon	0.20 to 0.25
Phosphorus	0.015 to 0.025
Sulphur	0.025 to 0.035

Examination of the Ingot Surface

To confirm the opinion indicated in the previous paragraphs, especially as far as the quality of the ingots

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Table I—Chemical Balance Sheet of the Results of Analyses of Ingot Mold Before and After Using

Mold Before Use			Mold After 58 Heats					Decrease (—) or Increase (+) of Element After the Mold Was Used
	Elements Present Except Carbon			Elements Except				
				Oxygen		Oxygen and Carbon		
Average Analysis	Actually Present	Calc't'd as 100 Per Cent	Average Analysis	Actually Present	Calc't'd as 100 Per Cent	Actually Present	Calc't'd as 100 Per Cent	
I	II	III	IV	V	VI	VII	VIII	IX
Fe 93.40	93.40	96.81	95.32 FeO	Fe 74.00	96.48	96.48	96.58	—0.24%
TC 3.52	....	....	0.09 C	C 0.09	0.117	....	....	—96.6
Mn 1.21	1.21	1.27	1.09 MnO	Mn 0.845	1.10	1.10	1.10	—13.4
Si 1.68	1.68	1.73	3.42 SiO_2	Si 1.60	2.08	2.08	2.09	+17.2
P 0.146	0.146	0.150	0.28 P_2O_5	P 0.122	0.159	0.159	0.160	+ 6.7
S 0.045	0.045	0.046	0.049 S	S 0.049	0.064	0.064	0.064	+39.1
100.001	96.481	100.006	100.249	76.706 (23.294% O_2)	100.000	99.883	99.994	

For comparison see illustration

produced is concerned, the metallic surface of some of the cooled large ingots was examined: Drillings taken from convenient locations on the surface of one of the 80-ton ingots showed the following percentages of phosphorus and sulphur:

A few more 80-ton ingots were tested and the analyses never exceeded 0.026 per cent phosphorus and 0.038 per cent sulphur, thus proving the previous statements.

Conclusions

From what has been said above, it seems that thorough and complete studies of the thermochemical deterioration of ingot molds—particularly on large ones—would afford in their application a valuable means for the extension of the life of ingot molds. The previously described changes on the interior surface of the molds give a general outline of the most important phenomena affecting chemically the mold metal, which might be summarized as follows:

1. Iron of the mold metal, as the dominant constituent, being oxidized, does not change its molecular position.
2. Carbon and manganese show, according to their chemical affinity for oxygen, diffusion toward the higher temperatures, i.e., to the hot ingot metal; during their use almost 90 to 98 per cent of the total carbon contained in the inner layers of the ingot mold is oxidized to CO_2.
3. The increase of silicon on the surface might be explained by the tendency to form silicates with MnO and FeO.
4. The increase of sulphur and phosphorus is doubtless the result of diffusion or the tendency to form constituents with hydrogen.

Table II—Analyses of the Surface of the Ingot

Distance From the Base of the Ingot		Phosphorus, Per Cent	Sulphur, Per Cent
Ft.	In.		
1	3	0.021	0.035
3	2	0.019	0.036
5	3	0.020	0.034
7	3	0.022	0.037
9	0	0.022	0.036
Ladle test (average)		0.019	0.036

Better Ends for Rails

Elimination of Sawdust Under Head of Rails Due to Hot Sawing

BY F. L. MACQUARRIE*

AN objectionable feature in fitting splice bars to new rails, that has, no doubt, given considerable trouble to track layers and engineers, is a small lump under the head of the rail, which, if a straight edge were placed at this point, would be seen to extend back sometimes as far as ½ to ⅝ in. from the end or saw cut of the rail. Its highest point is at the end of the rail, and it gradually diminishes to nothing. The writer has seen this defect in rails, which measured 3/64 and in some extreme case 1/16 in., while a good average is 1/32 to 3/64 in.

Should a "fish template" or splice bar be placed on rails with this defect it will be found that a very poor fit is obtained; much worse indeed than an extremely tight "fish," where there is a level fit on the length of the splice bar, whereas with this sawdust lump the splice bar rests on the lump and does not touch the rail at any other point, except the ends of bars, which are made to touch by the pressure of the bolts. Another bad feature of this is the fact that the splice bar fit is continually under severe and dangerous stress in touching only at the centers and ends. It is also continually nicking or wearing the splice bars at the danger point, for along with the sawdust there is also the burr of the sawing to an equal height, and unless the sawdust is removed at the proper place it is next to impossible for the chippers to remove the burr.

Various methods tried to eliminate this fault in the cold finishing were anything but satisfactory. As the color of the lump is the same as the rail and it rises gradually from the rail surface to its highest point, it is difficult for the chippers to see it. Next, its hardness, due to chilling of the fused sparks of which it is composed, makes it almost impossible to chip, as chisels tend to bound off. Filing has been the remedy, this being done during the final inspection. But this is one of the greatest causes for delay in the inspection and loading departments, as the filers sometimes have to resort to a sharp peaned hammer to remove it.

Going After the Cause

It is far better to eliminate the cause of the lump-sawdust. This is a simple process, easier than anything previously tried and with little initial cost and practically no alteration expense.

As already stated, the cause of sawdust adhering to the rail is the fact that the section cut by the saw during its course through the rail is broken up into small particles (sparks) in a fusing state. The particles not entirely burned up through fusion are hurled with considerable force onto the surface of the rail in line of

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fire, and are partially welded or fused together, forming an almost solid cake. Although this does not fuse to the rail, the surface of which is oxidized, it fills every possible crevice, including the burr, and attaches itself so firmly that it is quite a proposition to remove it by any of the methods mentioned.

The thickness of this sawdust cake varies with the condition of the saw in use. A good sharp saw will give little or no dust, whereas, after it has been on a short while the dust will adhere and gradually get worse as the saw becomes dull. The reason for this is obvious. A new or sharp saw cuts smaller particles cleanly, which are almost entirely fused and have not enough body weight to stick; whereas a dull saw cuts larger particles, which are not cut clean, but are literally torn off. The action may be likened to the Schoop metal spray process and, in so far as its adherence to the rail is concerned, it is purely a mechanical union of metal in a fused or plastic state.

This brings us up to the remedy, which is water. Properly applied to the right place during the sawing, water will entirely eliminate the sawdust lump.

Cautions in Use of Water

Two important points which must not be overlooked are undue chilling of the rail from use of too much water and air currents set up by the speed of the saw teeth. The air circulation generated is considerable and will blow the stream away from the point where it is needed, if the water pressure is not great enough to overcome it. In dealing with the former, chilling of rail, it is not the damage to the rail that matters, as the chilled part, if there should be any, will come back to the temperature of the rail almost before it reaches the hot beds, but this chilled blackened spot is very hard on saws and, therefore, the volume of water must be reduced to the smallest proportions.

In dealing with the wind set up by the speed of saw it will be seen that water under low pressure, or tapped from the same line used to keep the saw cool, should any be used for this purpose, will not suffice to overcome these air currents. It is therefore necessary to have considerable pressure and also to take advantage of the speed of the wind from the saw by placing the water jets back and in line almost parallel with the saw. In this way the air currents from the saw will tend to deposit the water at the proper point, instead of deflecting it, as would probably result if the jets were placed at right angles to the saw.

Two 1/16-in. jets, one on each side of the saw, placed as described, will entirely eliminate the sawdust defect and will not chill the rail. The smallest amount of water present at the point where the sparks hit the rail will prevent them from adhering to its surface. Hydraulic pressure may be used, but it is not necessary where pressures of 65 lb. and up are available. No doubt air or steam could be used, the former by reason of its force and the latter by combined force and moisture. But why go to the expense of a separate installation of considerable length, using costly products which are noisy and a menace to workmen's eyes when water will do the work better and without upkeep cost?

Resurvey of Steel Capacity Needed

Total of 51,000,000 Tons Claimed as Rational Limit of Country's Possible Output—Call for Reduction on Account of Obsolete Plants

BY JOHN A. TOPPING*

A PHASE of the iron and steel situation not generally understood is that there has not been for many years any comprehensive and exhaustive revision of the figures of productive capacity of the steel works of this country.

The figures published in the Statistical Report of the American Iron and Steel Institute are based upon those handed down by its predecessor, the American Iron and Steel Association. Additions, of course, have been made from time to time to the capacity figures, as suggested by additions to steel works.

As a result of this method of compilation, no account has been taken of the marked change in the metallurgical necessities demanded by steel consumers. These have resulted in a large displacement of Bessemer steel by open-hearth steel, and aside from this fact, there has been no allowance made for obsolete steel works capacity included in the total. Dismantled plant capacity, however, has been deducted.

The figures published by the American Iron and Steel Institute, in its latest tabulation, show that the theoretical capacity of steel production in the United States (ingots and castings) is as follows:

Bessemer	11,624,505 tons
Open-hearth	47,961,250 tons
Total	59,585,755 tons

Against this reputed capacity may be compared the maximum production realized in the years 1917 and 1918, when to demands of peace, the World War demands were added, a situation which naturally brought into service all plants that could possibly be operated and, necessarily, at full capacity. Again in 1923, when unusual demands were made upon the steel works by railroads and the building trades, production was again stimulated close to its practical capacity. The records of output (ingots and castings) obtained during these periods are as follows:

1917	45,060,607 tons
1918	44,462,432 tons
1923	44,943,696 tons

These figures of production show that the rate of employment in the steel works, under full pressure of demand, figured on the theoretical capacities as tabulated by the American Iron and Steel Institute, was only 76 per cent, when in reality our steel capacity, particularly for the years 1917 and 1918, was operated at the maximum.

It is certainly questionable whether the country's theoretical capacity for steel production at the present time is over 51,000,000 tons, *including an increased capacity of about* 6,000,000 *tons added since* 1918, and it is reasonably certain that, under no condition of demand, it would be practical for this country to produce this tonnage at present, as theoretical output is never realized in practice.

Under the pressure of recent demand, this country produced in the first six months of 1925, close to the rate of 45,000,000 tons per annum (ingots, not including castings), subdivided about as follows:

Open-hearth	38,300,000 tons
Bessemer	6,700,000 tons

If the rate of production for the first half of the year be maintained during the last six months of 1925, the percentage of capacity employed in 1925 will be close to 88 per cent of the present estimated capacity of 51,000,000 tons per annum.

During the past twenty years, the average growth of demand for steel has been at the rate of about 5 per cent per annum, as compared with the average increase in population for the same period, of about 1½ per cent.

If this increased growth in demand is continued, and

*Chairman Republic Iron & Steel Co.

there is every reason to expect it, *new production will shortly be needed to meet the country's requirements*, which if done, will be at a cost fully 100 per cent greater than the cost of existing plants.

Trade statistics are of vital importance to both the consumer and producer, but they should be accurate and steps should be promptly taken to obtain reliable data. To do this will require the active cooperation and good faith of all producers, which suggests that reported capacities should be more in line with actual performance under normal operating conditions of the several plants.

Germans Want to Buy Machine Tools

But Lack Credit Facilities, Says Returning Manufacturer— Suggests Group Financing of Machine Sales by Bankers

BY CHARLES D. OESTERLEIN*

LITTLE interest is shown by European machinery dealers in what is known as standard machine tools of American make. The competition of used machines and of the better new foreign makes, which sell at much lower prices, eliminates all but a few of the most thoroughly established builders, who do sell now to a limited extent. It is my conviction that American machine tool builders who have only standard types of machines to offer will have to wait patiently for two or three more years.

A great many new machine tool establishments have entered the European field, just as new concerns have entered the American industry. Present business conditions will not support all of them and in consequence there is severe competition and it is a case of the survival of the fittest.

Liquidation is taking place as steadily and surely as in the United States, resulting in tremendous stocks of used machines flooding the market and competing with new machines.

Added to this, the American manufacturer must take into account the fact that European wages converted into dollars are only half to two-thirds of what we pay and consequently the selling price of European machines generally is around 60 per cent of our selling price. In some instances it would be difficult to sell the American machines if this differential were narrowed to the point where foreign prices were 90 per cent of American prices.

With the European builders of standard machine tools there is apparently a mixed situation. It was a surprise to me to find any of them actually busy but a number of them *are* busy and at least one of the few on whom I called in England, is running day and night. Others in England and Germany are running to capacity and are apparently sold out many months ahead.

These more fortunate machine tool builders are the ones who make the better quality machines which compete with American makes. While the builders of high grade machines are faring rather well, those making cheaper machines are falling by the wayside. Many machines are being discontinued because the patterns are unsaleable and there is no loss of tooling equipment because their machines were not tooled for economical production.

The foreign machine tool builder is faring a bit better than the American and can be expected to continue to do so until the level of European prices and American prices come fairly close together.

The story is quite different when it comes to increased profit producing machinery of all kinds. Anything new, with a promise of turning out work sufficiently cheaper than by former methods on standard machines, will interest them. Furthermore, the builder who wishes to export has his choice of agents. Foreign production engineers are rapidly falling into step in adopting production machinery. Those American manufacturers who are now getting foreign business in any volume have not only improved types of machines for lowering the cost of production, but are in the field with their own men doing engineering work and rendering various kinds of service to back an active selling campaign. The manufacturers who are getting business at present are training the European production engineers to expect engineering and service from the seller. It will be advantageous for anyone who is earnestly seeking future European business, to provide this service.

Not all countries seem to be responding alike in the matter of taking up these new machines. There is an impressive contrast between the conservative attitude of the British manufacturer who has the credit available but seems more or less skeptical of things which are new, and the aggressive attitude of the German manufacturer who has the will to buy, but in many cases lacks credit facilities.

Perhaps pending business could be released by making it possible for the willing Germans and certain others to buy our machines through the means of establishing credits for this purpose. This is not an individual manufacturer's problem—indeed, it would be hazardous business for the manufacturer to undertake. There is no guaranty to the stability of the European situation as it exists today and in addition to this general insecuriy there are the problems of individual corporations. Economists employed by syndicates of bankers should be capable of formulating plans whereby suitable guarantees could be exacted and credit could safely be established in this country for this specific purpose. Clearly this is not a function of the manufacturers but of the bankers of the country. How are the Germans to eventually pay their enormous indebtedness if not in the products of their labor and how are they to produce until they are properly equipped to do so?

*Vice-president and general manager Oesterlein Machine Co., Cincinnati.

Large New "Sand-Spun" Cast Iron Pipe Plant at Birmingham

Plans have been perfected by the American Cast Iron Pipe Co., Birmingham, for the construction of a large new plant in which will be produced cast iron pipe by the "sand-spun" centrifugal process. An announcement of the perfection of this process and a description of it appeared in THE IRON AGE, June 5, 1924.

The new plant, it is understood, will produce cast iron pipe of 4, 6, 8, 10 and 12 in. diameter, and the capacity will be approximately 500 tons per day. It will be located at the east end of the present pipe foundry. Besides the new pipe shop, plans include a new battery of cupolas and a new iron yard.

The equipment of the new shop will include 12 centrifugal casting machines. Construction will start in the immediate future and it is expected that the new plant will be ready for operation by Feb. 1, 1926.

Due to the slackened demand, the Bengal Iron & Steel Co. has dismissed 5500 employees, according to a cablegram received by the Department of Commerce from Bombay, India. The cable reports that prices are slightly lower but that a rise is anticipated in view of the approach of a favorable rainy season.

High-Production Chucking Machine

Output Up to 2400 Pieces an Hour Claimed for New High-Speed Multiple Spindle Automatic—Idle Time Reduced by Air Chucking

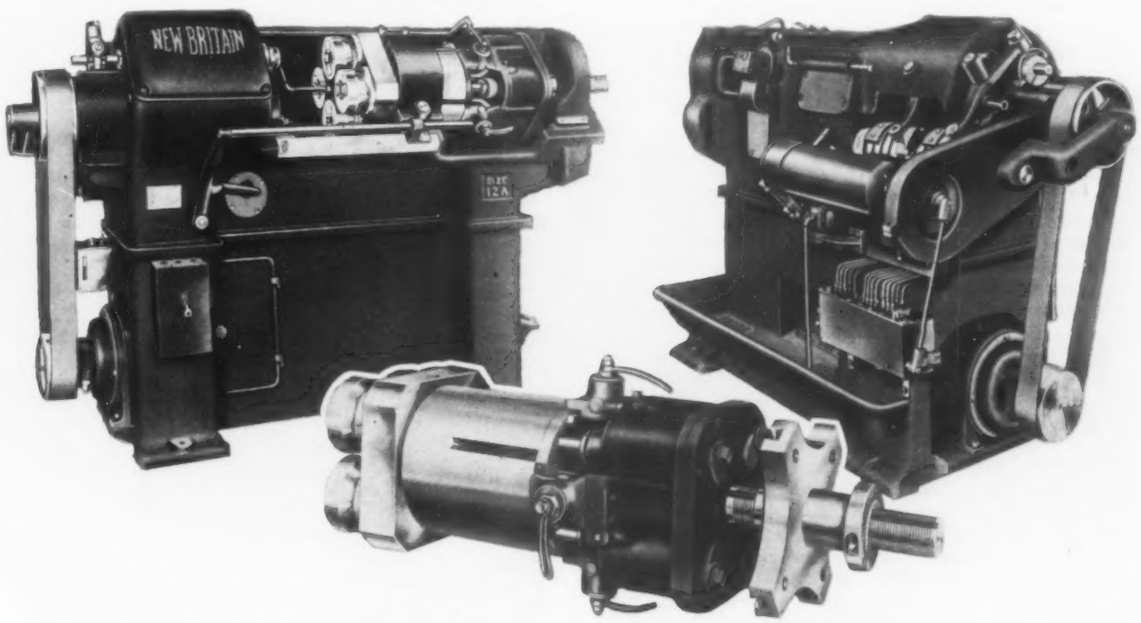
HIGH cutting speeds, and therefore rapid production, together with the rigidity necessary for closely accurate work, were outstanding considerations in developing the horizontal multiple-spindle automatic chucking machine illustrated, which is being added to the line of the New Britain Machine Co., New Britain, Conn. The machine, designated as the 12A, has been designed to permit taking full advantage of the cutting qualities available in high-grade tool steels, and high production is furthered by air chucking, which not only reduces idle time, but lightens considerably the labor of the operator.

This machine is provided with three spindles which carry and revolve the tools and advance them against the work held in the turret. In the machining of small brass, iron and steel parts, for which the machine is intended, a production of 177 to 2370 pieces per hour is claimed. The spindle speeds range from 366 to 2065 r.p.m. The turning capacity is 2 in., the threading capacity 1 in. and the maximum diameter of work held in outside chuck jaws is 5½ in.

When motor driven, a 3-hp. 1800 r.p.m. motor is mounted and partially inclosed in the head end of the base, as shown in the illustration, an arrangement intended to protect the motor from dust and oil. The base, of cabinet type, is a heavy one-piece casting of box construction, and is designed with separate work and chip chutes, chip and sump pans, and storage space for extra change gears, as well as the compartment for mounting the motor. The change gears are hung on studs which are attached to the door seen at the front of the base. A feature of the base is that it is cut away in front to provide ample knee-room when the operator is sitting.

The bed, which is mounted on the base casting, is of one-piece box type construction, and incorporates an inclosed headstock and a support, without overhang, for all revolving parts. The headstock contains the three sliding spindles and their operating mechanisms. The speeds of each spindle are independent of the others, and speed changes are made conveniently by slip gears mounted on the outside ends of the intermediate shafts. Spindle No. 3, which may be employed for turning, reaming or threading, is driven through heat-treated steel forward-and-reverse friction gears. All driving and speed change gears are of steel.

The spindles are of chrome-vanadium steel forgings and are heat treated, hardened and ground. The turning spindles are 1 9/16 in. in diameter in the bearings and the threading spindle 1 13/16 in. in diameter. All spindles have integral noses. Spindles No. 1 and 2 (usually used for boring or turning) are bored 1 in. in diameter and 2¼ in. deep, the nose of the third spindle (used for threading) being bored 1 in. in diameter and 2 15/16 in. deep, to receive a clutch type tap or die holder or other tools. The spindle bearings are of phosphor bronze, straight on the inside and tapered on the outside to permit of adjustment.



All Operations Except Loading the Chuck and Moving the Air Control Lever to Close the Chuck Jaws Are Automatic. The arrangement of the motor drive, lubricator and other details may be noted from the upper views, which are of the front and rear of the machine, respectively. The work turret assembly is shown in the insert

A feature of interest is the turret, the arrangement of which may be noted from the accompanying view of the turret assembly. It is of cylindrical form with the square face plate integral, the face plate being of a size to accommodate four chucking fixtures. The turret is mounted in a large capped bearing, 9 in. in diameter and 6 in. long, and is clamped automatically after each indexing, an arrangement intended to eliminate weaving effect. The turret unit may be adjusted 4 in. horizontally in its bearings, to and from the spindles, by the threaded turret shaft, which is provided with a micrometer dial for making accurate adjustments. The locking bolt slots are arranged so that they never extend beyond the work side of the cap bearing. The locking pin and clamping mechanism are inclosed within the bed, protected from dust and dirt. The locking bolt is of rectangular form, one side being straight and the other tapered, to compensate for wear. Geneva type indexing mechanism is employed, which gradually accelerates the turret at the time of indexing and gradually checks the momentum without shock. The time consumed in indexing is constant regardless of the machining time.

On the turret shaft and bolted to the turret is a

single cylinder block containing four air cylinders, used for chucking. The pistons act directly, through draw rods, upon two- or three-jawed collet chucks and through racks and elliptical pinions upon two-jawed chucks. Air at 80-lb. pressure is constantly held upon the pistons while the work is being machined, an arrangement stressed as assuring that the chuck jaws will maintain their grip on the work, and as providing for effective action in cases of variations in the size of work. Provision is made for automatic opening of the air valves when the turret indexes from the finishing position, permitting the work to drop into the chute provided in the base of the machine. A new piece of work is then inserted in the chuck by the operator, who closes the chuck by closing the air valve. The collet chucks regularly furnished are of the draw back type and of patented design, with either two or three jaws. The capacity of these chucks is 1¾ in. diameter. Non-end moving spider stops are available for positioning the work. The two jaw chucks are of screw type and may be hand-operated when desired. Special chucking fixtures or draw back thread arbors may be furnished also.

The cam drum is a single casting, 8½ in. in diameter and 21½ in. long, with tongue grooves for locking jig-drilled, forward-and-reverse, cast iron cam plates. It is accessibly mounted on the cam shaft at the rear of the machine. Cams feed the spindles independently of each other through heavy ball thrust spindle yokes. Shifting accelerating dogs serve to reduce the time between cuts.

The feed mechanism, also mounted at the rear, is driven at constant speed from the main drive shaft through Morse silent chain. It is operated by a friction clutch controlled by the lever extending across the front of the machine. The hand crank for setting up the machine is also located conveniently at the front, and the arrangement is such that the machine cannot be power-operated when the hand crank is in place. The slip change gears provide for 13 rates of production and additional gears can be furnished for other rates of output.

Lubrication of the machine is by forced feed with separate leads to each bearing, these oil leads, seen extending from the lubricator shown in the rear view illustration, being adjustable to suitably supply both fast and slow moving parts. The automatic lubrication saves the time consumed in hand oiling, and permits of high spindle speeds without the danger of injury to the bearings.

The weight of the machine is 3700 lb. net and the floor space occupied 35 in. by 84 in. Another machine, to be designated as the No. 23A, of similar design but with four spindles and five chucking positions and swinging work up to 7 in. in diameter, is about ready to be placed upon the market.

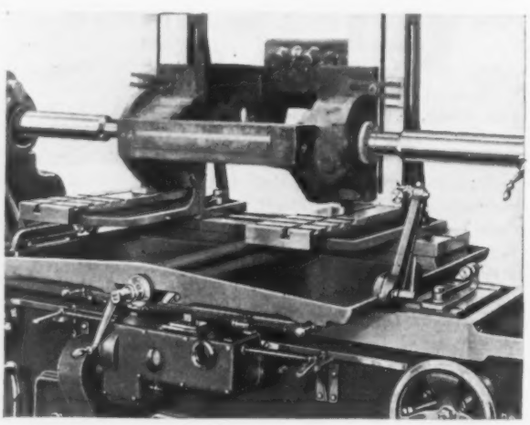
Double-Headstock Alining Grinder

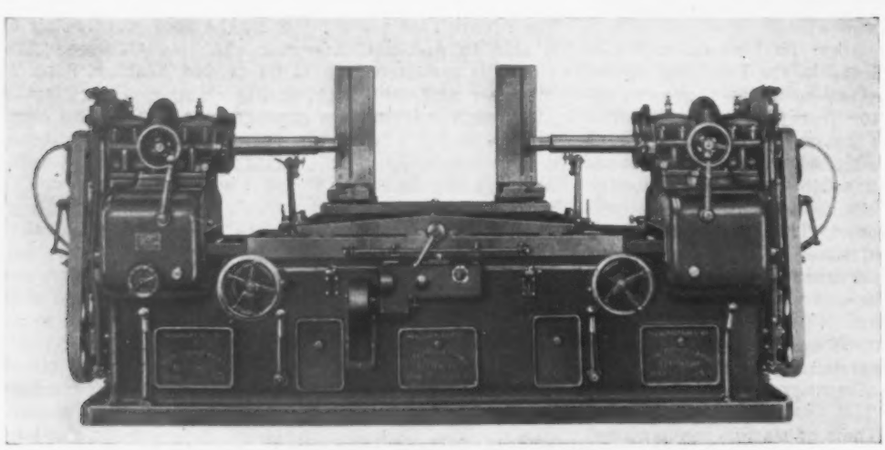
A double-end internal grinder designed to grind machined parts where alinement of holes is of primary importance and which may be used also to face grind the work so that the outer face will be at right angles to the bore has been developed recently by the Micro Machine Co., Bettendorf, Iowa.

The maximum length of work accommodated is 5 ft. 6 in. and on work of this length the machine will grind to a depth of 6 in. As the length of work is decreased, the grinding depth is increased. On parts 4 ft. 6 in., for example, spindles may be furnished to grind 12 in. deep at either end. Holes ranging from 1⅛ in. to 15 in. in diameter may be ground.

The machine, designated as the model EG, is equipped with work holding angles with independent vertical adjustment. These angles are mounted on a cross-slide sub-plate, which is provided with a graduated feed screw and a taper take-up gib to compensate for wear. The fixture and sub-plate are mounted on the main table of the machine. Quick start and stop controls may be operated from either end of the machine. In addition to five table feeds, hand and rapid power feeds are provided to facilitate setting up.

The headstocks are of rigid construction, with the main bearing 8½ in. in diameter by 21 in. long. Lubrication of the headstock is by forced feed, the oil well being cast integral with the headstock. The main bearings may be operated independently of each other. They are controlled by a friction clutch through an operating lever conveniently located on the front of the machine and are equipped with hand wheels for quick centering. Eccentric feeds, fine or coarse, may be operated while the main bearing is running. The





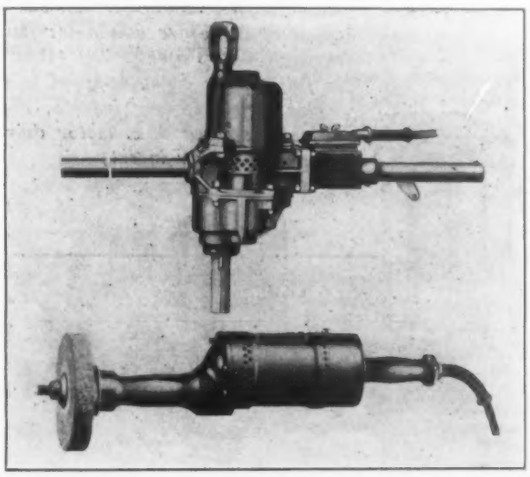
Double - Head Alining Grinders. The work may also be face ground at right angles to the bore. The arrangement of the work-holding fixture may be noted from detail view above

machine may be used either as a wet or a dry grinder. All units have either force-feed or grease-gun lubrication, and ball bearing mountings are sealed against grit or dust.

The machine incorporates the same features as the company's single headstock machines, such as the pantograph spindle drive which is intended to eliminate belt back lash, giving the grinding wheel a continuous speed, and the variable speed in the headstock. The floor space required by the machine is 5 ft. 9 in. by 13 ft. 3 in. The height over all is 6 ft. 1 in. The weight less the motor is 13,000 lb. net.

New Line of Alternating-Current Portable Electric Tools

The Chicago Pneumatic Tool Co., 6 East Forty-fourth Street, New York, is placing on the market a new line of portable electric tools, known as the Hicycle, two of which, the reamer and grinder, are illustrated herewith. Greater power and durability together with light weight are features claimed.



Portable A. C. Electric Reamer and Grinder

It is pointed out by the company that the induction motor, which operates on two or three phase alternating current, requires less attention than an equivalent direct current motor. This is attributed largely to the absence of commutator and brushes as well as to the more constant speed. The secondary element, usually the rotor in the induction motor, cannot be burned out, whereas both the armature and the field coils of the d.c. motor are subject to this damage.

The advantages of the induction motor are stressed as applying equally well to the smaller motors of this type used in portable electric tools. A drawback in the application of the induction motor in portable electric tools has been that on standard power lines where 60 cycle is available, the maximum rotor speed (with a two pole motor) is 3600 r.p.m., whereas on direct current much higher speeds are possible. In the Hicycle electric tools this drawback to the use of the induction motor is stated to have been overcome.

It is stated by the company that the power developed under load by a portable tool of a given size of armature, assuming that the best design of winding has been applied, depends upon the speed under load, and is almost in direct proportion to the speed. With a drill or grinder of a given size having an armature speed without load of 11,000 r.p.m. and a full load speed of 4800 r.p.m. increase of the latter speed to 9600 r.p.m. would double the power of the tool. The limiting speed in a series-wound direct current motor is, of course, the free speed, and in the case of a drill or grinder of the given size of armature, this could not be safely increased to the extent required to give a loaded speed of 9600 r.p.m. It is further pointed out by the company that with a tool of the alternating-current induction type, the maximum speed at 60 cycles is 3600 r.p.m., with a two pole motor. At 180 cycles the speed of the two pole motor will be 10,800 r.p.m. and at full load the speed will drop to approximately 9936 r.p.m. It will be noted that while the free speed of the 180-cycle tool is no higher, the loaded speed is more than double, more than twice the power being developed with the same size rotor or armature. As compared with the 60 cycle induction motor, it is pointed out that about three times the power will be developed.

To operate the Little Giant "Hicycle" tools a special generator furnishes the current at 180 cycles, 220-volts, three-phase, which has been adopted as standard. This frequency is said to lend itself nicely to 60-cycle induction motor drive, being a multiple of 60-cycles, so that direct-connected generator sets can be supplied economically. The small switchboard for the "Hicycle" generator is simple and inexpensive. Ball bearings are used throughout.

Wire Straightening Machine

The salvaging of bent and twisted wire is the function of the machine here illustrated, which has capacity for material ranging from 1/16 to ⅜ in. The straightening of 150 to 200 ft. of wire a minute is claimed.

The machine is simply constructed, consisting of eight rolls, the first two of which act as pinching rolls,

Straightening of 150 to 200 Ft. of Wire a Minute Is Claimed

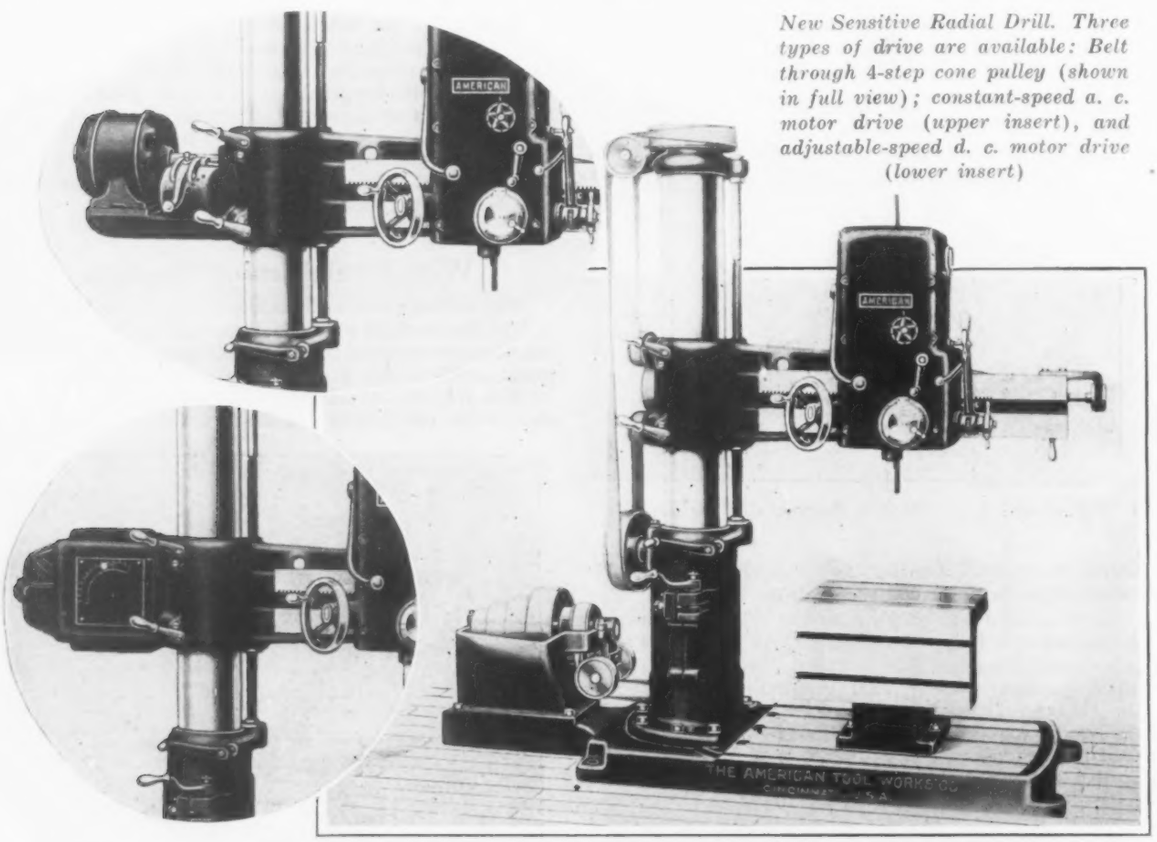
being equipped with spring adjustment to prevent shaft strain. The remaining six rolls are staggered, all but one upper roll being driven by gears. These rolls are all made of tool steel, heat-treated and hardened. The shafts are of high carbon steel, accurately machined and polished. A feed guide made of high carbon steel directs the wire into the rolls. Passes in the rolls are so cut that once the machine is adjusted it is unnecessary to readjust the rolls for each size of wire other than to raise or lower the last roll to correct the tendency of the wire to go up or down as it is delivered from the machine. All rolls and gears are covered by

guards which protect the operator. The machine is driven by a Westinghouse 2-hp. 1140-r.p.m. motor, through reducing gears, the motor being suspended under the main frame of the unit. The Kane & Roach Co., Syracuse, N. Y., is the manufacturer of the machine.

HIGH-SPEED DRILLING

Spindle Speeds Up to 2000 R.P.M. Obtainable on New Sensitive Radial Drills

Higher speed than ever provided on a machine of its type is claimed for the sensitive radial drilling machine illustrated, which is known as the Maxi-Speed and is a recent addition to the line of the American Tool Works Co., Cincinnati. The machine is intended for drilling and tapping holes up to and including 1 in. in diameter, and is adapted for drilling, tapping and counterboring of switchboards, automobile chassis, electrical parts, engine frames and similar parts. Three sizes, 3, 3½ and 4 ft.. are available.



New Sensitive Radial Drill. Three types of drive are available: Belt through 4-step cone pulley (shown in full view); constant-speed a. c. motor drive (upper insert), and adjustable-speed d. c. motor drive (lower insert)

Three types of drive, belt, adjustable-speed motor and constant-speed motor, are furnished. On the motor-driven types, the motor is on the arm of the machine, and the only belt employed drives the head. On the belt-driven machine, the driving belt is supplemented by another which connects with the lower cone shaft and the vertical belt that drives the arm shaft. With this type of drive eight spindle speeds, from 400 to 2000 r.p.m. are available.

The adjustable-speed motor drive employs a 3 hp. 4 to 1 d. c. motor, connected to the horizontal driving shaft by means of a flexible coupling. A wide range of spindle speeds, from 500 to 2000 r.p.m., is obtainable, the number depending upon the number of electrical speeds provided by the controller. The constant-speed motor drive consists of a 3 hp. constant-speed squirrel cage alternating current motor connected to a gear box mounted between the motor and the horizontal driving shaft. Six spindle speeds, from 500 to 2000 r.p.m., are obtainable through the gear box, which is of the tumbler type. The gears are slowed down during speed changing and shock is avoided by means of a friction, which is disengaged automatically when the tumbler lever is raised to disengage the gears, and re-engaged when the gears are again thrown into mesh. This friction is said to provide a yielding member in the drive which protects both the electrical and mechanical transmission against the danger of shocks.

Operating conveniences incorporated in the machine contribute also to speed up production. All operating levers have been placed in the head. The feed lever is directly in front of the operator at his right hand, which position is convenient and also obviates interference with the work. The feed lever is of ratchet type and when placed in the vertical position it is automatically disengaged from the rack pinion shaft. The spindle can then be adjusted quickly up or down by means of a spiked handwheel on the end of the rack pinion shaft. The tapping attachment lever, through which the spindle is started, stopped and reversed, is located at the left-hand side of the head. Power is transmitted to the spindle through hardened and lapped multiple disk clutches, the operation of which requires only a slight movement of the control lever. To obtain quick response of the spindle, a brake is incorporated inside of the head which acts automatically on the spindle driving pulley when the control lever is thrown to the neutral position. This stops the spindle quickly and relieves the clutches of the necessity of overcoming the momentum of the moving parts.

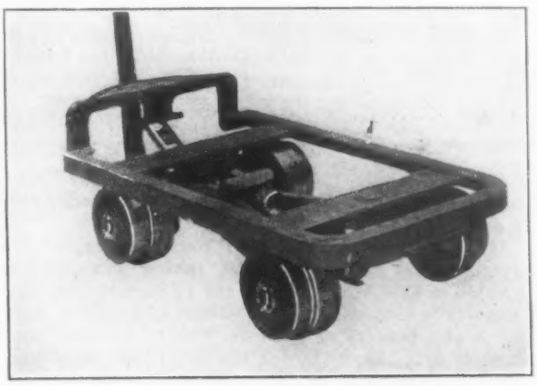
A feature is the power feed to the spindle, which is regularly supplied in addition to the sensitive or lever feed. Three rates of power feed, 0.003 in., 0.006 in. and 0.010 in. per revolution of the spindle are provided. The feeds are obtained through a small gear unit inclosed in the head, which receives power from the spindle. Feed rates are indicated on a direct-reading dial on the front of the head, and by bringing any

feed on the dial to a fixed pointer, the feed is engaged automatically. A small lever below the dial engages or trips out the feed to the spindle. An automatic graduated depth gage provided trips the power feed at any predetermined point. This also stops the hand feed, permitting the operator to duplicate depth of holes and counterbores.

The base, column and adjustable arm construction are the same as in the company's triple-purpose geared radial drill. Ball bearings are used throughout. Several different types of tables, including separate round pedestal table, swinging box table, worm swiveling table, plain box table and universal table may be furnished. The net weight of the 3-ft. machine is 3200 lb., and of the 4-ft. machine 3600 lb.

Combination Floor and Rail Lift Truck

A lift truck which is claimed to roll a platform load on 24-in. narrow gage track or on flooring with equal facility is being marketed by the Plimpton Lift Truck Corporation, Stamford, Conn. The truck was designed originally for handling pig iron and scrap in foundries, where it is desirable to transport loads upon flooring inside of the building area, and on track for trips outside. Automobile steering knuckles retaining quadrangular wheel spacing permits changing from floor



Truck Equipped for Use on Rails or Floors

to track or track to floor at any point without the use of turntables or switches.

Three sizes, for loads up to 5000 lb., are available. The height of the truck is 11¼ in., the width 30 in. and the platform length 44, 58 and 72 in. respectively.

Contest of First Aid Teams

Efficiency in first aid treatment was demonstrated by ten teams from the various plants of the American Rolling Mill Co. at the Armco Interplant First Aid Meet, which was held at Armco Field, Middletown, Ohio, on Aug. 1. Judges from the U. S. Bureau of Mines found that the best team scored 395 out of a possible 400 points in proficiency, while the lowest team totaled 379 points. A team from the Zanesville, Ohio, plant, the winners, will represent the company at the international meet at Springfield, Ill., in September.

Safety work carried out by the company's plants was recited by George M. Verity, president, in an address preceding the meet. Mr. Verity told of instances in which workers trained in first aid had saved human lives. He pointed out also that hundreds of Armco men had taken the first aid course of training and that teams representative of the company's plants had won the Ohio and Kentucky State championships recently.

M. E. Danford, works manager of the Middletown division; S. R. Rectanus, assistant manager, Ashland division; Jerome Watson, chief, Ohio State division of mines; and J. J. Forbes, chief of the extension division of the U. S. Bureau of Mines, were the speakers at the banquet which followed the meet. Charles R. Hook, general manager American Rolling Mill Co., was toastmaster and distributed prizes to the various teams.

Fall Meeting of Institute of Metals

The regular fall meeting of the Institute of Metals Division of the American Institute of Mining and Metallurgical Engineers will be held at Syracuse, N. Y., from Oct. 5 to 7 inclusive in conjunction with the annual convention and exhibition of the American Foundrymen's Association. Three technical sessions and a round table discussion on brass foundry topics have been arranged. Two of the sessions will be joint sessions with the foundrymen with an independent session scheduled for Wednesday morning, Oct. 7. The program for this session is as follows:

"The Present Status of the Investigation of Fatigue of Non-Ferrous Metals," by Prof. H. F. Moore, University of Illinois, Urbana, Ill.

"The Annealing Cracking of Nickel Silver," by E. O. Jones and E. W. Whitehead, Manchester, England.

Business meeting of the Institute of Metals Division.

The round table discussion will be held Tuesday, Oct. 6, preceded by a luncheon. The first joint session is scheduled for Monday afternoon, Oct. 5, when miscellaneous papers will be presented. The second is scheduled for Tuesday morning, Oct. 6, when papers on aluminum and aluminum-alloys will be discussed. The usual dinner of the division will be held Tuesday evening, Oct. 6, at the Hotel Syracuse.

To Visit Altoona Railroad Shops

Transportation problems will be the major topic of the regional meeting of the American Society of Mechanical Engineers, to be held in Altoona, Pa., Oct. 5 to 7. Excursions will include a visit to the large shops of the Pennsylvania Railroad, where more than 15,000 men are employed in the production and maintenance of locomotives, cars and other railroad equipment. A center of interest at these shops undoubtedly will be the test plant, with its locomotive test table, which has been an important factor in the development of the steam locomotive in this country. The table permits the operation of a locomotive at 80 miles an hour and is equipped with a variety of instruments and devices to measure and record every part of its efforts. The local committee in charge of the meeting is headed by F. G. Grimshaw, works manager of the Pennsylvania Railroad, Altoona, Pa.

Canton Bridge Co. Acquired by Moss Iron Works

The Canton Bridge Co. has been sold to J. W. Moss of the Moss Iron Works, Wheeling, W. Va. Valuation of the Canton Bridge Co. was placed at half a million dollars and approximately $250,000 cash is understood to have changed hands in the deal. The Canton plant will be operated as a subsidiary to the two plants of the Moss company in Wheeling and Martins Ferry.

The Moss Iron Works is an independent steel fabricating company employing about 1000 men. The Canton company was organized in 1891. Guy C. Hiner is now president.

Inland Steel Co. Earnings Decline

The Inland Steel Co. reports net income for the period ended June 30 of $1,230,813, after depreciation, taxes, etc. Combined earnings for the six months ended June 30 were $2,259,384, which compares with $3,668,364 in the similar period of 1924. The report shows a reduction in net income in the second quarter of about $250,000, when compared with the second quarter, 1924.

The newly organized Falls Steel Tube & Mfg. Co., Newton Falls, Ohio, will begin production in August, according to R. A. Kenworthy, president. The company will manufacture welded steel tubing in commercial gages, diameters and lengths. Mr. Kenworthy was formerly secretary of the Newton Steel Co., Youngstown.

MACHINERY EXPORTS

June Less Than May, Imports Higher—Fiscal Year Shows Gain in Both

WASHINGTON, Aug. 3.—Exports of machinery in June were valued at $28,746,061, as compared with $32,164,865 in May, while for the fiscal year ended with June, 1925, they were valued at $338,715,075, as against $315,930,844 during the fiscal year 1924. Imports of machinery during June, 1925, were valued at $935,487, as against $861,655 in May, and for the fiscal year, 1925, the value was $10,404,337, as compared with $9,214,861 for the fiscal year 1924.

Exports of machine tools in June numbered 4186, valued at $1,003,225, as against 5423, valued at $1,230,914 in May. Exports of locomotives in June were valued at $905,341. The chief country of export was Brazil, which took 29 locomotives, valued at $700,350, while for the 12 months Brazil took 89 locomotives, valued at $1,983,508. Four locomotives, valued at $71,775, were shipped to Mexico in June, while for the 12 months that country took 69 locomotives, valued at $1,879,712.

Sewing machines exported to Brazil in June were valued at $136,086, and for the 12 months they were valued at $571,608. Exports of sewing machines to Mexico in June and in the 12-month period were valued at $121,833 and $1,262,407, respectively, while shipments to the Philippine Islands were valued at $104,580 and $744,825, respectively, and to the United Kingdom $97,756 and $1,643,615, respectively. Exports of typewriters by countries for the single month and the 12-month period to principal consuming countries were as follows: United Kingdom, $217,572 and $3,135,982; France, $130,372 and $1,778,180; and Austria, $87,075 and $375,203. The principal exports of printing presses for June and for the 12-month period were to the United Kingdom, $72,682 and $1,302,408, and to Canada, $49,318 and $1,102,762.

Australia was the principal source of exports of harvesters and binders in June, taking shipments to the value of $190,475, while for the 12 months this class of exports to that country was valued at $201,084. Harvesters and binders shipped to France in June were valued at $127,159, while for the fiscal year they were valued at $1,899,100.

United States Metal-Working Machinery Exports

	June, 1925		May, 1925	
	Number	Value	Number	Value
Lathes	129	$177,483	144	$233,923
Boring and drilling machines	170	36,183	146	41,344
Planers, shapers and slotters	33	87,795	21	33,010
Bending and power presses	40	52,723	27	50,448
Gear cutters	23	59,414	10	40,797
Milling machines	64	115,145	98	193,176
Thread-cutting and screw machines	68	103,075	89	113,944
Punching and shearing machines	13	11,543	16	38,686
Power hammers	24	63,303	20	9,983
Sharpening and grinding machines	115	197,536	197	339,656
Chucks, centering, lathe, drill and other metal-working tools	2,256	27,847	3,065	32,797
Pneumatic portable tools	1,233	71,278	1,590	103,150
Total	4,168	$1,003,225	5,423	$1,230,914

Machinery Exports from the United States
(By Value)

	June, 1925	June, 1924	Twelve Months Ended June, 1925	June, 1924
Locomotives	$905,341	$546,626	$7,397,497	$4,188,236
Other Steam Engines	297,890	70,073	2,218,188	493,591
Boilers	191,462	160,073	2,001,506	1,898,112
Accessories and Parts	119,245	371,065	1,881,149	4,191,122
Automobile Engines	1,489,688	240,543	11,816,970	4,084,661
Other Internal Combustion Engines	385,537	542,984	6,096,807	6,877,962
Accessories and Parts for	423,587	295,123	3,626,530	3,689,376
Electric Locomotives	22,497	477,694	1,449,394	2,400,644
Other Electric Machinery and Apparatus	440,562	600,063	7,036,017	8,972,947
Excavating Machinery	174,805	266,705	2,406,138	1,900,994
Concrete Mixers	59,557	60,641	680,359	614,568
Road Making Machinery	16,548	135,465	1,241,170	1,181,744
Elevators and Elevator Machinery	152,967	114,082	1,987,723	2,073,192
Mining and Quarrying Machinery	967,721	755,358	9,919,144	10,880,033
Oil Well Machinery	642,925	534,553	7,840,794	7,038,842
Pumps	483,397	559,680	6,906,001	7,550,957
Lathes	177,483	94,133	1,803,489	1,250,482
Boring and Drilling Machines	36,183	34,018	696,631	650,195
Planers, Shapers and Slotters	87,795	27,364	527,513	277,524
Bending and Power Presses	52,723	24,192	768,065	432,769
Gear Cutters	59,414	33,438	597,989	370,587
Milling Machines	115,145	70,028	1,255,442	456,640
Thread Cutting and Screw Machines	103,075	30,590	812,772	605,560
Punching and Shearing Machines	11,543	4,956	175,587	127,182
Power Hammers	63,303	26,342	278,119	191,385
Sharpening and Grinding Machines	197,536	238,488	2,554,946	1,376,200
Other Metal Working Machinery and Parts of	454,655	462,682	4,703,797	4,530,110
Textile Machinery	803,025	723,477	9,577,155	8,698,894
Sewing Machines	769,466	648,034	8,083,310	10,110,609
Shoe Machinery	125,997	124,326	1,554,685	1,276,815
Flour-Mill and Gristmill Machinery	144,983	65,441	841,564	1,104,199
Sugar-mill Machinery	544,590	391,505	9,004,787	6,610,001
Paper and Pulp Mill Machinery	199,247	131,985	1,669,543	1,893,575
Sawmill Machinery	53,732	63,786	758,589	622,051
Other Woodworking Machinery	70,968	87,205	1,320,062	1,274,921
Refrigerating and Ice Making Machinery	154,061	16,889	1,996,009	1,237,900
Air Compressors	249,590	207,771	3,299,912	2,954,817
Typewriters	1,346,825	1,105,487	16,606,013	14,401,018
Power Laundry Machinery	71,874	23,895	1,012,775	169,283
Typesetting Machines	244,947	321,391	3,368,428	4,039,253
Printing Presses	337,963	308,078	5,143,496	4,834,295
Agricultural Machinery and Implements	5,632,800	4,722,579	62,977,914	60,904,888
All Other Machinery and Parts	9,863,409	10,182,047	122,821,096	117,492,710
Total	$28,746,061	$25,900,765	$338,715,075	$315,930,844

Imports of Machinery into the United States
(By Value)

	June		Twelve Months Ended June	
	1925	1924	1925	1924
Metal-working machine tools	$27,820	$47,187	$321,292	$409,297
Agricultural machinery and implements	320,525	201,743	2,956,923	2,508,356
Electrical machinery and apparatus	49,071	22,952	1,423,353	398,535
Other power generating machinery	706	2,307	14,955	86,578
Other machinery	376,164	278,158	4,021,541	3,449,887
Vehicles except agriculture	161,201	124,682	1,666,273	2,368,208
Total	$935,487	$677,029	$10,404,337	$9,214,861

Standard Tank Car Co. Readjustment

The plan of readjustment adopted by stockholders of the Standard Tank Car Co. in March has been consummated by the sale of $4,250,000 of equipment trust certificates, which displace several issues previously outstanding. Other notes have been retired through an issue of $786,800 in debenture notes and by cash payments provided in the plan. The car line business and 2757 tank cars have been transferred to the Standard Transit Co., whose stock is owned by the company.

The board of directors was enlarged and now includes: James D. Andrew, vice-president and general manager; Walter P. Chrysler, chairman Maxwell Motor Corporation; William F. Cutler, president Southern Wheel Co.; Duncan A. Holmes, vice-president Chase Securities Co.; Stewart McDonald, president Moon Motor Car Co.; Grayson M.-P. Murphy, chairman of the board; J. B. Orr, president; Samuel F. Pryor, chairman of the executive committee, Remington Arms Co., and Ernest Stauffen, Jr., vice-president New York Trust Co.

The Walworth Alabama Co. is the local incorporation of the Walworth Mfg. Co. of Boston, which recently purchased the plant and properties of the National Pipe & Foundry Co. at Attalla, 50 miles north of Birmingham, and now plans to enlarge the shops to provide for making valves and specialties as well as soil pipe and fittings. J. F. Thornburg is president of the Alabama company; Wiley Alford, vice-president and general manager; Robert M. Henderson, vice-president and works manager; J. Eaderhold, Jr., secretary-treasurer.

SCRAP GOING TO ITALY

United States Filling Part of the Gap Left by French Export Restriction

WASHINGTON, Aug. 3.—Relatively large shipments of scrap steel from the United States to Italy in June are attributed to a considerable extent to the restrictions by the French Government against exports of scrap. Of American steel scrap exports, amounting to 12,985 tons in June, approximately 10,000 tons went to Italy and, in view of the refusal of the French Government to lift the restriction against exports of scrap, it is believed that Italy will continue to be an important source of exports for American scrap. The Italian iron and steel industry is strongly dependent upon scrap imports, and France has been the leading country for these shipments.

According to a report received by the Department of Commerce, the Italian iron and steel producers are considerably disturbed over the continued French restriction. Out of 492,000 metric tons of scrap imported into Italy in 1924, France contributed 292,000 tons, or about 60 per cent. In the first quarter of 1925, scrap imports into Italy from France totaled 153,000 out of a total importation of 238,000 tons, France's portion being about 64 per cent. The French treasury, it is reported, would allot Italy only about 120,000 tons annually, or much less than the amount imported from France during the first three months of 1925.

The report received by the Department of Commerce from Rome says that the recent iron and steel scrap exports from France to Italy had assumed such proportions as to affect the French industry and to cause alarm in French circles. Italy's imports from France rose from 58,000 tons in 1913 to 265,000 tons in 1923, and approximately 300,000 tons in 1924, according to the French press. It is understood, therefore, that total exports of scrap from France are to be limited to 300,000 tons annually.

LOWER PIG IRON RATE

Reduction of 50 Cents Per Ton from Cleveland to Canton

CLEVELAND, Aug. 3.—The Ohio Public Utilities Commission has ordered a reduction on or before Aug. 15 of the freight rate on pig iron from Cleveland to Canton, from $1.76 a ton to a rate not to exceed the $1.26 rate from the Youngstown district to Canton, so that Cleveland will be placed on an equal basis with the Youngstown district for Canton shipments. Formerly the rate on pig iron to Canton was the same from all the furnaces usually reaching that market, but about two years ago Leetonia, and later Youngstown, secured a reduction in the Canton rate. About a year ago Cleveland pig iron producers filed protest with the State Utilities Commission against their freight disadvantage on pig iron shipments to Canton.

Valley furnaces now having the $1.26 rate to Canton include Youngstown, Leetonia, Girard and Struthers stacks. Hubbard furnaces at East Youngstown and two or three western Pennsylvania furnaces have the $1.76 rate. The reduction in the freight from Cleveland to Canton will result in a reduced rate from Cleveland to Akron, Barberton, Cuyahoga Falls and probably some other northern Ohio consuming points.

Industrial Engineering to Be Taught at Ohio State University

E. A. Hitchcock, dean of the College of Engineering, Ohio State University, announces that there will be inaugurated a department of industrial engineering connected with the College of Engineering next fall. John Younger, formerly chief engineer, truck division, Pierce Arrow Motor Car Co., chief of engineering division, Motor Transport Corporation, and vice-president Standard Parts Co., will head the new department.

The proposed course is designed to prepare engineering students for future engineering executives and to give a broad view of administrative problems. The foundation of this education will be the standard course in fundamental engineering principles and the remainder of the work will be treated from the engineering side of factory problems.

Wheeling Steel Corporation Did Well in Second Quarter

The Wheeling Steel Corporation earned net profit, applicable to dividends, of $747,094 in the quarter ended June 30 last. In the same quarter last year the company had a deficit after dividends of $170,000. For the first six months this year net profits were $1,595,000, as compared with $772,000 in the same period in 1924. The showing for the quarter ended June 30, of course, has been helped by the fact that preferred stock dividends were reduced. Preferred A stock, which is 8 per cent cumulative, calling for a quarterly disbursement of $2 a share, received $1.40, and preferred B stock, calling for a quarterly dividend of $2.50, received only $1.75. The report is as follows:

Income after repair and maintenance charges of $1,188,054 and Federal tax		$2,017,612
Less:		
Depreciation	$829,564	
Exhaustion of minerals	15,478	
Interest	425,476	
		1,270,518
Net profit applicable to dividends		747,094
Surplus April 1, 1925		5,956,933
Add:		
Net profit as above		747,094
		$6,704,027
Deduct:		
Dividend on pfd. A stock	$69,358.80	
Dividend on pfd. B stock	394,794.75	464,154
Net surplus June 30, 1925		$6,239,873

American Locomotive Co. Earnings Fall

Earnings of the American Locomotive Co. in the first half were very lean and reveal to what extent the railroad equipment builders have felt the depression in railroad buying. Net profit available to dividends was only $212,718. Total earnings were over $10,000,000 short of the same period last year and, if $875,000 be deducted for preferred dividends, there remains a deficit of $662,282. These figures compare with a balance for dividends of $2,883,185 and a surplus of $2,008,185. for the first six months of 1924.

New business taken in the period reported was nearly 70 per cent less than that booked in the first half last year and the relation of plant operations to rated capacity was about 29 per cent in the period just closed. Reports for the half-years 1925 and 1924 follow:

	First Half, 1925	First Half, 1924
Gross earnings	$16,444,588	$26,855,332
Mfg., maint., admin. exp. and deprec.	16,218,832	23,514,103
Interest	13,038	23,044
Balance	212,718	2,883,185
Pref. divs.	875,000	875,000
Deficit	662,282	*2,008,185

*Surplus.

Two regular quarterly dividends on preferred stock in the first half and common dividends of $4 per share on common add about $2,000,000 more to the deficit. Excess of current assets over current liabilities on June 30 was $40,922,197, after providing for shrinkage of receivables and two extra dividends. The company had in its treasury $30,865,387 in cash and marketable securities.

Commenting on conditions, President Andrew Fletcher said: "There has been very little demand for new locomotives since April, the railroads of the country having materially reduced their usual purchases. A depression in the company's business has resulted, but we believe the condition is but temporary."

Payrolls Take Larger Share of Income

Individual Efficiency in Iron and Steel Plants Continues to Drop as Productive Volume Declines

BY DR. LEWIS H. HANEY

DIRECTOR N. Y. UNIVERSITY BUREAU OF BUSINESS RESEARCH

UNITED STATES employment in June was about the same as in May last year, and was a little better than the average for 1924. Iron and steel employment has fallen off a little more than has employment in industry as a whole, but it is not far from the average level between January 1924 and the present time.

The average number of laborers employed in United States factories at the middle of June was 1.1 per cent smaller than in the preceding month. This represents a substantial decline in productive activity, but the decrease can not be called sharp.

Fig. 1 shows that the trend of employment in the country as a whole was downward in both May and June, and that the number employed in the iron and steel industry has been declining steadily since January.

The decline in general employment is likely to go a little further; but it will probably not fall to as low a point as was reached last summer, and will increase again early in the Fall.

Iron and steel employment is nearly down to a level where stability may be expected.

The sharpest losses in employment throughout the country were in fertilizers, women's clothing, vehicles, and boots and shoes. The automobile industry lost 4.4 per cent, the iron and steel industry 2.8 per cent, and cotton textiles 2 per cent.

Reports from several states throw light on the employment situation: In *Illinois*, employment was lower than in any June since 1921, but the decline was less rapid than in May and a large volume of building activity was tending to prevent a sharp decrease. In *New York*, reduced employment had begun in the automobile business and further declines occurred in iron and steel. The New York pig iron and rolling mill industries showed a decrease in employment of 5.2 per cent. In *Massachusetts*, there was a small increase in machine tools, foundry products, and cutlery and tools. In *Pennsylvania* and *New Jersey*, the important losses occurred in blast furnaces, iron and steel mills and forging plants. In Pennsylvania and New Jersey increased employment was shown in the manufacture of engines, machinery and machine tools.

Real Wages Also Down

THE cost of living index of the National Industrial Conference Board registered an increase of 1 per cent in June. This brings it back to the January level, which was the highest reached since April, 1921. (See Fig. 2.)

On the other hand, the average weekly earnings of factory laborers in the United States decreased 2.1 per cent in June.

This divergent movement of living costs and labor earnings is obviously reducing the purchasing power of the average laborer. The spread between the two is now only about the same as existed last Fall, but is still a little smaller than it was a year ago. In fact, when comparisons are made with earlier conditions it is seen that labor is still better off. In New York factories, since the spring of 1922, the earnings of labor have gained 15 per cent, while average living costs have increased only 4 per cent.

The recent trend, however, will undoubtedly tend to stiffen the resistance of laborers to wage cuts. As labor costs are in need of reduction in many industries, the situation is one of the big problems of the day. To the extent that the manufacturer is producing those articles which enter into the increased cost of living, he may benefit by the higher retail prices. The rub comes in those numerous cases in which the manufacturer is not so benefited, but has to pay high wages for laborers who are producing a product which is declining in price, and who are also producing a smaller quantity per man. As a result payrolls are encroaching too largely on profits. This is the condition in too

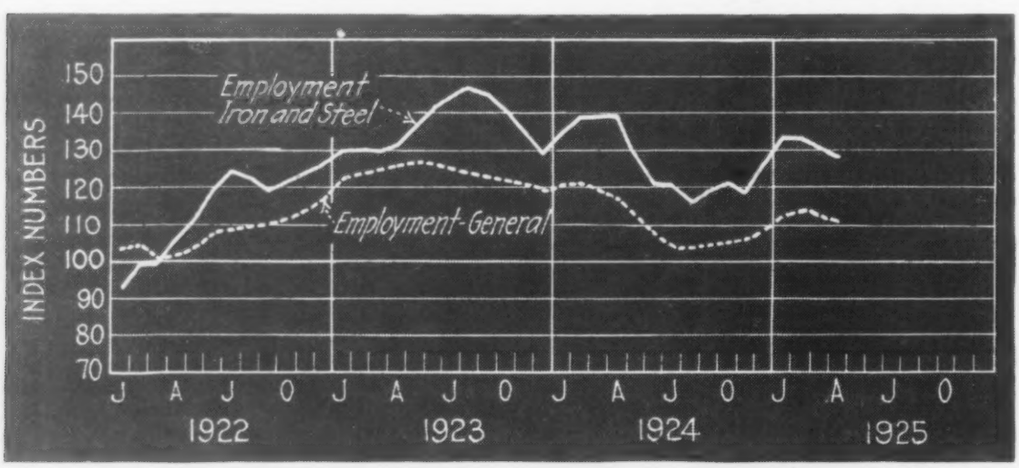


Fig. 1—Though Employment in Iron and Steel Mills Has Dropped, It Is Still Well Above the Level Which Held at This Time Last Year

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The Iron Age and Its Readers

PRODUCTION men are wont to minimize the importance of technical research, because so frequently the results of a long and expensive investigation seem relatively small. Now and again, however, there comes the scientific approach which lends a good strong arm of information and advice of practically immediate value. The discussion of what happens in the metal of large ingot molds, which appears in this issue of the THE IRON AGE under the signature of J. H. Hruska, is a contribution of the kind. It opens substantially a new path of investigation as to what affects the life of ingot molds and thus has an appeal to the millman responsible for economies as well as output.

The article is a companion to an earlier one by Mr. Hruska, who is metallurgist of the International Harvester Co., and formerly with the Skoda Works in Czecho-Slovakia. This, published in THE IRON AGE of Jan. 29, this year, covered the composition, including alloys, of ingot molds.

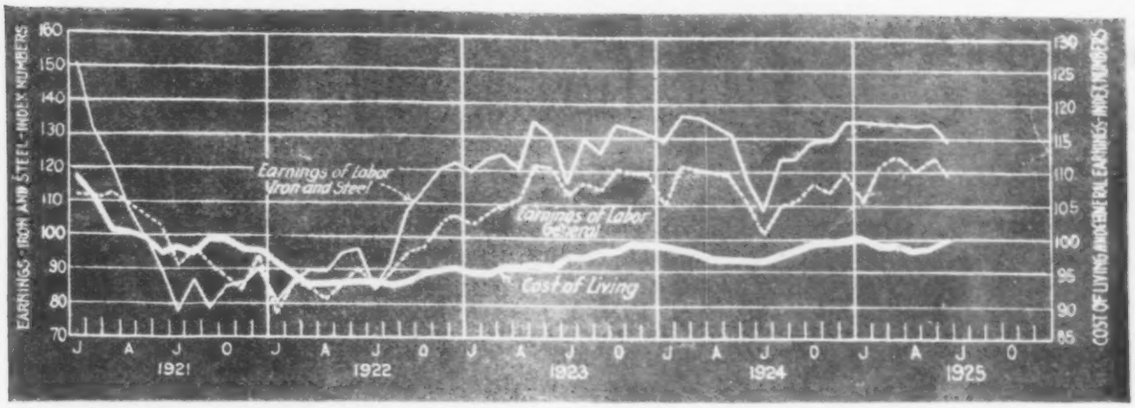

Fig. 2—The Cost of Living Has Increased and Wages Have Declined a Little; Consequently Real Wages Show a Considerable Drop

many industries today. The relation between wages and prices will become adjusted in time, but in the meanwhile labor "difficulties" and small margins of profit will be common.

Payrolls Take Larger Share

ACCORDING to estimates made by the New York University Bureau of Business Research, the total value of iron and steel produced in June, figured at current prices, decreased over 8 per cent from May, and was only a little greater than in May last year. (See Fig. 3.)

The payrolls of the iron and steel industry also decreased in June, but the decline was less than in the case of the values produced. Payrolls were only about 3 per cent smaller than in May, according to partial figures.

The ratio of value to payrolls is now back to about the level reached last August. June was the third month in succession to show a decline. The probability is that the low point in this ratio will be reflected in the July figures.

There is no indication that the value of iron and steel produced will fall as low in proportion to payrolls as it did last year in June and July.

Labor Less Productive

THE output per man in the iron and steel industry was also lower in June. The total production of pig iron and steel in that month in proportion to the number of men employed in the industry was considerably smaller than in May. It is estimated that in this sense the efficiency of labor in the industry was about the average for last September and October, but was considerably higher than it was a year ago.

Considering industry as a whole, the ratio of manufacturing production to the number of laborers employed showed a sharp decline in May—which is the latest month for which complete data are available. On the basis of partial data, moreover, it is believed that the down trend in the average quantity of manufactured goods produced per man continued in June, but that stability will be shown in July and August. The outlook is for greater production per man by September.

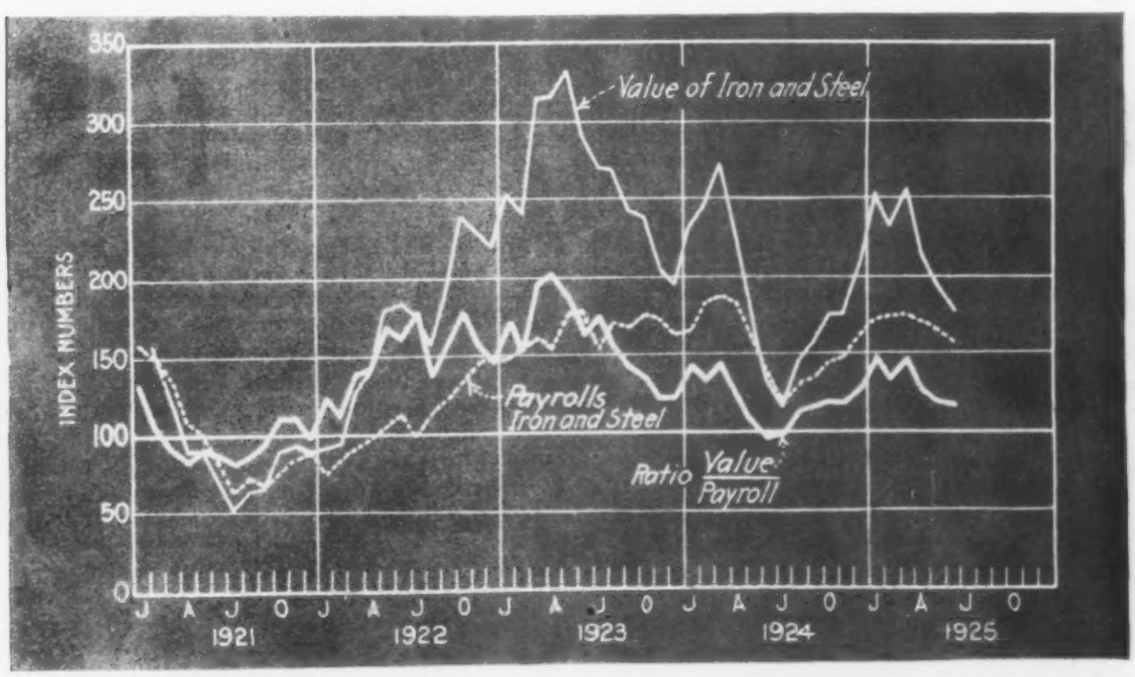

Fig. 3—As the Volume of Production Becomes Smaller, the Share of the Gross Income Which Is Apportioned to Labor Shows a Steady Increase

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Putting Off the Reckoning

CABLES from London tell of a feeling of relief, and even of congratulation, throughout Great Britain over the passing of the coal mining crisis. Such satisfaction is much like what a hard-pressed debtor might feel on being able to renew a note at pawnbroker's rates. Such a settlement is not merely the postponement of the critical day, but its postponement with the practical certainty of diminishing resources meanwhile. Nor has the promise of Government financial aid to the coal companies reduced by a single jot the belligerence of the coal miners' union. Its officers assert that the crisis is not over, but just beginning. In particular they are stirred to fight by the sober words of Prime Minister Baldwin, who is reported to have said in the conference, "Not only you but all other workers in the country must have your wages reduced."

The British union leaders, like those in this country who represented the United Mine Workers in the Jacksonville agreement, think more of a high wage rate, even though it increase unemployment, than of real wages. The larger operation that would come from adjusting wages to competitive conditions makes no appeal to them. They have gained their contention for the moment, at the expense of the tax-paying public, but have only aggravated the situation in which miners and owners have been floundering for many months.

The Royal Commission of Inquiry that is to investigate the British coal industry is not likely to be any more successful than previous royal commissions in finding a larger market for British coal or setting at work the thousands of miners whom the union insists on keeping idle. The United States Coal Commission, that went about its task with far greater promise of results than this new royal commission has, fully demonstrated the futility of attempting to solve the coal problem by creating public opinion. The public complains, but eventually it pays. Even now, in the United States, it is taking for granted the breaking off of the so-called negotiations between the anthracite operators and miners and the intervention of the Pennsylvania Governor or of the Administration at Washington in the interest of a truce that will only postpone a reckoning long overdue.

The Strength of Scrap Prices

IRON and steel scrap has plainly come into its own in the past few years as a commodity having an intrinsic and permanent value, not merely an occasional or opportunist value. The fluctuations in the market since the war have not been such as to give dealers as much opportunity to make speculative profits as they used to enjoy. There are fluctuations, but careful manipulation is required to make only ordinary profits.

From a broad viewpoint it would appear that what has happened to scrap is that it has grown up to such size as to make it worth while. The country is no larger in area than it was when the iron and steel industry's tonnage was inconsequential, while the layer of iron and steel spread over the country has been growing quite thick. There is much more production and consumption of scrap per square mile.

It pays better to gather old material because the pieces are larger and not so far apart, so to speak. Factories producing scrap are larger and can afford to pay more attention to its segregation and sorting, making a more merchantable commodity of it. Also, they know more about the market and realize that when scrap prices decline they are always going to come back. Hence in many cases the factory keeps its scrap when the market goes down, whereas before the war it would simply sell from time to time to the best bidder, however low the bid might be.

Of course the scrap market has fluctuated. It always will fluctuate. It is in the nature of things that the market value should change from time to time, being indeed particularly sensitive to influences. There cannot be stabilization as is possible with ordinary manufactured products.

It is not a case of scrap being worth much more now, relative to other commodities, than before the war, for indeed the reverse is the case. The average market value of heavy melting steel scrap delivered in the Pittsburgh district during the year 1924 was only 20 to 25 per cent above its average in the ten years before the war. Finished steel products, and commodities in general, showed a much greater gain. The scrap has an intrinsic value, but there is competition. Sup-

plies being larger, they are more easily handled per unit, and handling equipment is greatly improved.

A selection of figures might be made to show that fluctuations of late in scrap prices have been less than were the fluctuations before the war, but general market conditions and other circumstances have been so different that the citations would hardly be conclusive.

On the other hand, it is quite clear that the scrap market is more sensitive to prospects than it used to be. It is remarkable with what prescience old material values have called the turn in the various steel trade changes that have occurred in the past three years. That is recent history. In 1920 the scrap market utterly failed to see what was coming. It waited until November and December for its real slump. The course of scrap in the past few months furnishes a particularly good illustration. The market reached its low point not later than May 1, thereupon beginning to stiffen. Bad news in steel kept coming out but the scrap market had its own view.

Less Ore Per Ton of Iron

JUST under a quarter century ago the notion began to spread that the iron ore resources of the United States were limited and would stand only a few decades of the increasing drain upon them. In the industrial depression in the eighteen-nineties there had been some regretful talk about our exports of pig iron. This, it was said, was frittering away important natural resources instead of making finished products at home out of the pig iron. It is encouraging, therefore, to find that in the past ten years our consumption of iron ore per ton of pig iron made has decreased.

If we say that the height of this talk about our limited resources fell in the year 1905, up to that time the United States had made about 275,000,000 tons of pig iron. Since then, or in 20 years, we have made more than 600,000,000 tons, or more than twice as much additional, and we are getting along comfortably, with practically no talk of threatened exhaustion.

Precise facts are citable and are up to date with the statistics just issued of materials consumed by blast furnaces in 1924, contained in the annual statistical report of the American Iron and Steel Institute.

In lean years the tendency is for only the better furnaces to operate and only the better materials to be used, while in years of intensive production leaner ores are used. A trustworthy comparison can be made by taking the mean of 1913-4 and the mean of 1923-4, making a ten-year interval. On this basis we see that per ton of pig iron made the consumption of iron ore decreased from 1.862 tons to 1.790 tons, while the consumption of scrap, cinder, scale, etc., increased from 0.122 to 0.141 ton, the total of all ferrous material charged decreasing from 1.984 to 1.931 tons.

Thus, while it would not inconvenience us at all seriously to have to use a little more iron ore per ton of pig iron year by year, we have actually been trending in the other direction, although we have now made more than three times as much pig iron as had been made when this scare was quite prevalent.

It does not follow from the figures just cited that the material taken out of the ground has been growing richer in iron content. It has not. There has been beneficiation of some of the leaner material and there is better furnace practice.

Improvements in ore treatment and in blast furnace practice are not all we have to depend on in feeling safe as to our industrial future as influenced by the supply of iron. After use the material can come back as scrap, and the more thickly iron is spread over the country the easier it is to gather the scrap. Also, year by year, stronger, tougher and more durable steel is made, so that the tonnage does not have to increase by as much as the required performance increases.

The Manganese Ore Tax

FURTHER proof that the domestic supply of high grade manganese ore is inadequate to the needs of our steel industry is furnished by the 1924 data. American mines produced 56,515 gross tons last year compared with 31,500 tons in 1923. Here is a gain, to be sure, but the home production is insignificant in comparison with the 511,200 tons imported in the same year. The fact that last year's output exceeded that of 1923 and was also over four times the yield in 1922 has been pointed to as the fruit of the Fordney tariff of 1922. Granting that it is, what can be said in defense of a cent-a-pound tax on all the metallic manganese brought into the country, when after two years all the domestic ore production this high duty could stimulate was sufficient for but one month's output of our ferromanganese furnaces? Every old-school advocate of protection freely admitted that the main justification of protective duties was such encouragment of home production as would give the consumer the benefit of competitive prices. But this manganese duty goes right on adding so much to the cost of every ton of steel produced in the United States, with no prospect of lowering the price of manganese ore through the development of home competition.

Labor's Interest in Business

WHO would have predicted, twenty years ago, that one day a workman could buy his food and clothing from a store in which he owns an interest, deposit his wages in a bank of which he is a director and take out an insurance policy with a company in which he owns stock? Yet labor unions in this country own mines, mills, banks, stores, and now there is to be the Union Labor Life Insurance Co., capitalized at $2,000,000.

Visitors to these shores often point with amazement to the rows of cars parked before some industrial plant and find it hard to believe that wage-earners own them. Living conditions in the United States have long been the envy of labor in practically every other country. But these things are on the surface, to be seen and admired by the bystander. The vast sums invested in American business by wage-earners, the growing share in the fixing of working conditions

yearly entrusted to employee representatives, and the rapidly growing extent to which labor itself is engaging in business enterprises—these are more significant than mere automobiles and radios in homes.

Business has everything to gain in these co-operative undertakings of workmen. To whatever extent mills and factories might come under the control of labor, there would be still the demand for executive ability and business acumen. Russia is the perfect example of the futility of labor ownership without intelligent supervision and management. This country will not repeat on any scale the mistakes made there.

There has never been any proof that union members can compete successfully with the business brains of men who will never join a union; but there is plenty of proof that a more intimate knowledge of business problems and difficulties is one result of labor enterprises. The American Federation is educating itself in matters which in time should be of great interest to employers.

Stabilization in Electric Steel

WHILE no production records were broken by the American electric steel industry in 1924, the showing was highly creditable and not without significance. The high marks established in 1923 were so nearly approached as to give the industry a degree of stability.

In electric steel castings the 1924 output of 203,549 gross tons was next to the largest, being only 12 per cent under the high record made in 1923, according to statistics of the American Iron and Steel Institute. The expansion in the foundry since the war has been noteworthy, each year's output with the exception of 1921 having exceeded that of any year in the war period or before.

The high point reached in electric alloy castings in 1923 was also closely approached last year—28,821 tons against 29,004 tons. In 1914 only 340 tons of such castings were made and it was not until 1919 that the total exceeded 5000 tons. The electric ingot production last year, 225,977 tons, compares with 279,914 tons in 1923.

Looking at the electric steel industry as a whole, while the 432,526 tons of ingots and castings last year was about 16 per cent under the record figure of 1923, the two years were on a parity in the percentage of the total steel made.

The experience of the past three years makes it probable that electric steel manufacture has been so far developed in this country that erratic fluctuations in output are no longer likely and that, like the older processes, it has gained an assured place in the industry.

A MEASURE of the present depression in the British steel industry is the diminished output of both pig iron and steel. For the first half of this year both have averaged less per month than in any year since the war, with the exception of those of marked inactivity, 1921 and 1922. The average of pig iron production to July 1, this year, 563,200 tons per month, is about 8 per cent under that of 1924, while the steel output for the same period is about 16 per cent less than that of last year. The peak was in March and the decline since that month has been steady. The combined effect of labor troubles, high transportation and fuel costs, and competition from the Continent is increasing rather than diminishing.

CORRESPONDENCE

Much Yet to Do in Eliminating Fatigue

To the Editor: I have read with pleasure the editorial entitled, "Getting Rid of Industrial Fatigue," in your issue of July 9.

This is a good editorial, but I regret that the writer did not choose his language more carefully in the last paragraph. A careful reading of this paragraph and comparison of it with the rest of the editorial leads me to believe that the writer unintentionally made a much broader and less qualified statement than he intended. Certainly any statement that "the bulk of the work of eliminating industrial fatigue has been done," is not warranted by the facts.

The mere fact that quantitative information on the subject of fatigue is so generally lacking, renders it impossible as yet to arrive at any such ideal condition as the statement quoted would indicate.

GEORGE H. SHEPARD,
Professor of Industrial Engineering and Management, Purdue University
Lafayette, Ind., July 23.

BOOK REVIEWS

The Making, Shaping and Treating of Steel. Fourth Edition. By J. M. Camp and C. B. Francis. Pages, 1142 + lxii, 5 x 7¾ x 1⅝ in.; illustrations, 346; tables, 104. Flexible binding, thin Bible paper, fabricoid cover. Published by the Carnegie Steel Co., Bureau of Instructions, Pittsburgh. Price, $7.50; 60 per cent discount to employees of the United States Steel Corporation and to educational institutions and public libraries.

In reviewing at length this book, when the first edition appeared in 1920, THE IRON AGE said that it contained more concerning the most recent developments in the manufacture and treatment of steel than any other volume extant, and that Mr. Camp and his associate had given the industry the sort of book for which it had been waiting. Remarkable as was the original work, this fourth edition surprises the reader with the extent and character of the matter that has been added. Whereas the original volume had 614 pages and 122 illustrations, this one has more than 1200 pages with 346 illustrations. Thus the authors have produced what is virtually a new work on the metallurgy of iron and steel, and its publication is an event of high importance.

With the addition of so much matter, the book now appears in four parts instead of three. In Part I the new chapters deal with the manufacture of wrought iron, and early methods of making steel (the cementation and crucible processes), and there is a considerable further treatment of the acid open-hearth process. In Part III the new sections relate to molybdenum, manganese and silicon steels and there is now an added chapter on "Extra Fine and Special Steels."

Part IV, which is entirely new, is entitled "The Manufacture of Steel Wire, Sheet and Tubular Products." Following five pages devoted to gages, it has 97 pages dealing with the rolling of wire rods, wire drawing processes and equipment, heat treatment of wire, metallic coatings for wire, and steel wire products; 59 pages on the manufacture of sheet mill products, the subdivisions dealing with construction and operation of hot mills, cold rolls, pickling, annealing and galvanizing equipment, also with kinds, sizes

and uses of sheets. Then come 40 pages on tin plate, dealing in turn with the history, kinds, properties and uses of tin and terne plate and the rolling, pickling, annealing and coating of such plates. The chapter on the manufacture of steel tubular products (92 pages) takes up in order the processes and equipment for making butt weld, lap weld, hammer weld and seamless pipes and tubes.

Sections of the old text which have been entirely rewritten are those dealing with pulverized coal, the by-product process for manufacturing coke, benzol plants, classification of products of ferrous metallurgy, the testing of structural and other soft steels, the shaping of rail joints; also the hardening and tempering of steel.

The authors explain that in recognition of the value of history, particularly in helping investigators to avoid the mistakes or duplicate the work of others, they have devoted considerably more space to these phases of the subject than in previous editions. Thus the main object of the chapters on wrought iron and cementation and crucible steels is to supply background showing the needs that developed the modern processes of steel making, in this way helping the student to understand the differences between the many varieties of iron and steel produced today and the reasons for those differences.

What was said in these columns in praise of the original work can now be reiterated and emphasized—that in whole and in detail this contribution of Mr. Camp and Mr. Francis to the literature of American steel works practice is most admirable.

BETHLEHEM MEN RESIGN

Three Prominent Officers of Steel Company to Retire on Sept. 1.

Three prominent officials of the Bethlehem Steel Corporation will retire on Sept. 1. They are Archibald Johnston, vice-president; Henry S. Snyder, vice-president, and William W. Tobias, manager of purchases.

HENRY S. SNYDER

ARCHIBALD JOHNSTON

It is stated that these men will continue to act in an advisory capacity whenever called upon to do so, but they will sever all active connection with the company with which all for so long have been associated.

Certain changes and promotions in the Bethlehem organization are forecasted as a result of the retirement of these officials, but President E. G. Grace has not yet made announcement as to the persons to be affected.

Mr. Johnston entered the physical testing department of the Bethlehem Iron Co. in 1889 and later had charge of the erection and operation of the gun forging plant, which was the first in this country. Later he was in charge of the building of the armor plate department, also the first in the United States, and for a number of years superintended its operation. He was made assistant general superintendent of the Bethlehem Steel Corporation and later vice-president. He is a native of Phoenixville, Pa., and was born in 1865. His public school training at Bethlehem was followed by a course in Lehigh University from which he graduated in 1889 as a mining engineer.

Mr. Snyder was born in Bethlehem in 1869 and attended the public schools there. He became assistant to the president of the Bethlehem Iron Co. in 1895, was elected secretary and treasurer of the Bethlehem Steel Co. in 1901, and secretary and treasurer of the Bethlehem Steel Corporation in 1905, becoming vice-president in 1906. For a number of years he was in charge of iron ore operations, being made president of the Juragua Iron Co. and of the Bethlehem Iron Mines Co. in 1909. He was also president of the Cheever Iron Ore Co. in the period of Bethlehem control of the Cheever property near Port Henry, N. Y.

Mr. Tobias has been connected with the Bethlehem Steel Corporation and its predecessor, the Bethlehem Iron Co., for about 25 years, with the exception of about two years when he became associated with the Milliken Brothers Mfg. Co., fabricator of steel transmission towers, returning to the Bethlehem company in 1909. Mr. Tobias started with the Bethlehem Iron Co. as purchasing agent, having had previous experience in such work with the Long Island Railroad. During his long experience with the Bethlehem company he has become one of the best known purchasing agents in the country.

CARLOAD RATES UPHELD

Raw Materials and Finished Products Must Be Considered on Merits

WASHINGTON, Aug. 3.—Dismissing a complaint by the Somerville Iron Works, the Interstate Commerce Commission, in a decision made public today, held that rates on cast iron soil pipe, in carloads from Somerville and Newark, N. J., to points in New England are not unreasonable. The Central Foundry Co. and the Essex Foundry, makers of cast iron soil pipe at Newark, had intervened in support of the complaint. It was claimed by the complainant that, in selling cast iron soil pipe in New England, it must meet the price of its competitors at Lansdale, Linfield and Boyertown, Pa., Newark and Baltimore, and that, since these competitors are afforded lower rates on their raw materials but the same rates on the outbound manufactured products, the complainant is at a disadvantage. The rates on the raw materials to Somerville were not attacked.

After holding the rates from Somerville are not unreasonable, the decision said:

"If complainant is under any disadvantage by reason of the fact that its inbound rates on raw material are higher than the rates of its competitors in the group, that disadvantage may not properly be offset by reducing the rates on the outbound product unless such outbound rates are themselves in violation of the act."

Commissioner Cox dissented.

"Care and Operation of Transformers" is the title of a 14-page handbook of instructions issued by the Electric Power Club, Keith Building, Cleveland. Copies of the pamphlet may be obtained for 25c. each. This is one of the series of handbooks prepared by the club—an association of manufacturers of electric power apparatus and control equipment.

Power switchboard and switching equipment forms the subject of a handbook issued by the Electric Power Club, Keith Building, Cleveland. There are 96 pages of data standardized in accordance with the methods of this club, which is an association of manufacturers of electric power pparatus and control equipment. Copies of the pamphlet may be had at 50c. each.

EXPORT MARKET QUIETER

Firmness of American Mills Causes Pause—Importers Quoting on Structural and Rails

NEW YORK, Aug. 4.—A moderate volume of inquiry for various steel products continues from the Far East, but greater firmness in the prices quoted by American mills has evidently temporarily interrupted the recent Japanese activity. Among current inquiries from Japan is one from the Imperial Army for 5000 boxes of canners' tin plate, special quality, bids on which open Aug. 25. Chinese merchants are apparently interested in the purchase of tin plate, but are not inclined to pay the current export price. One exporter to China recently quoted on 500 boxes of tin plate but the counter offer of the Chinese merchant was about $5.30 per base box, c.i.f., Chinese port.

In prospective business from railroads in the Far East, the 16,000 tons of relaying rails for a Chinese road are still open. In Japan, Osaka municipality will open bids Sept. 11 on about 300 pieces of 92-lb. grooved rails. The Imperial Government Railways have not yet awarded the 56,000 tie plates recently under inquiry. There are several large inquiries for bolts and nuts in the market from Japan. One of these is for 500,000, another for 300,000 and two or three smaller inquiries for 100,000 or less. In most cases the galvanized or sherardized product is specified and the material is for use in transmission towers.

American importers of European steel continue active and in most cases are able to quote 1.90c. to 1.95c. per lb., c.i.f., duty paid on bars and shapes of intermediate grade Thomas steel. Inquiries for rails are still accumulating, but few sales of size are reported. The larger portion of the inquiry is apparently from the Southwest, principally Texas. One of these inquiries calls for 6000 tons of 20-lb. rails and another for several thousand tons of 75-lb. rails. On the Pacific Coast an inquiry is reported current from a railroad of that section for 6500 tons of heavy sections. Evidently, the railroads not receiving business directly from steel mills along their lines are inclined to consider foreign rails with favor.

FOREIGN BIDS REJECTED

New York City to Buy American Cast Iron Pipe at $36,000 Advance

By a two-thirds vote of the Board of Estimate and Apportionment, the City of New York decided to reject foreign bids recently submitted on the 9000 tons of cast iron pipe and special and valve box castings, valves and double-nozzle fire hydrants. Rejection of the foreign bids, submitted by the Gelsenkirchener Bergwerks A. G., Dusseldorf, Germany and by B. Nicoll & Co., New York, for the Pont-a-Mousson works in France, the former being low on the major part of the tonnage and the latter next to the low bidder on one item, is understood to have been based on a protest by the American Federation of Labor and the belief that the low bidder could not execute the contract in the time specified, 100 days.

It is noteworthy that on an equivalent tonnage of pipe and accessories, between 9000 and 10,000 tons in all, for which the city will shortly advertise, foreign bids will again be accepted.

The Department of Purchase, City of New York, expects to award the 9000 tons under consideration to 11 American companies at a total price of $524,240, or about $36,000 more than the price of the German bid. The division of the business is, in round numbers, as follows: Warren Foundry & Pipe Co., $120,000; United States Cast Iron Pipe & Foundry Co., $117,450; Standard Cast Iron Pipe & Foundry Co., $35,000; John Fox & Co., $90,000; R. D. Wood & Co., $35,000; A. P. Smith Mfg. Co., $30,000; Kennedy Valve Mfg. Co., $25,000; Chapman Valve Co., $25,000; Talladega Foundry & Machine Co., $25,696; Central Foundry Co., $12,000 and the Flockhart Foundry Co., $10,000.

Reduced Rates to Houston District Not Allowed

WASHINGTON, Aug. 4.—In a decision announced today the Interstate Commerce Commission held that proposed rates on iron and steel products in carloads from the Birmingham district to the Houston, Tex., group were not justified, except on cotton ties and buckles. The proposed reduction in cotton ties and buckles from 48c. to 33c. per 100 lb. was not protested and will be allowed to go into effect.

The reductions were sought by carriers serving the Birmingham district, supported by iron and steel producers in that district. Protest was made by iron and steel manufacturers on and north of the Ohio River.

The reductions proposed were 3c. and 3.5c., except that on plate the reduction was 16c. The principal articles moving from the Birmingham district to the Houston group are merchant bars and structural steel. The proposed reduction on merchant bars was from 57c. to 53.3c., while the proposed reduction in the rate on plate was from 57c. to 41c. Birmingham makers urged the reduction partly for the purpose of meeting water competition and also to meet competition from Eastern mills, especially those along the Atlantic seaboard.

Diversified Technical Program for New Haven Machine Tool Exhibition

Addresses, papers and discussions on a diversity of topics relative to machine shop practice have been arranged for the technical sessions of the New Haven Machine Tool Exhibition announced on page 338 of this issue.

"Centerless Grinding," a paper by W. J. Peets, factory methods engineer, Singer Mfg. Co., Elizabethport, N. J., will be presented Wednesday afternoon, Sept. 9. In the evening O. B. Iles, president of the International Machine Tool Co., Indianapolis, and president of the National Machine Tool Builders' Association, will speak on "The Future of the Machine Tool Industry." This will be followed by an address on "The Foreign Trade Outlook in the Machine Tool Field," by W. H. Rastall, chief of the industrial machinery division, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington. "All Metal Airplanes," a paper by W. B. Stout, president of the Stout Metal Airplane Co., Detroit, will also be given at the evening session.

"Cylindrical Precision Lapping," a paper by Paul M. Mueller, engineer of the Pratt & Whitney Co., Hartford, which will open the Thursday afternoon session, will be followed by a written discussion by the Reed-Prentice Co., Worcester. Luther D. Burlingame, industrial superintendent of the Brown & Sharpe Mfg. Co., Providence, will present material on the "High Speed Cutting of Brass" at the same session. Round table discussions at a dinner meeting to be held Thursday evening will center on inspection methods and precision measurements; power press work, production milling, and shop training methods.

A session on shop training methods, with Prof. John T. Faig, Ohio Mechanics Institute, Cincinnati, in charge, has been arranged for Friday afternoon, Sept. 11. H. A. Frommelt of the Falk Corporation, Milwaukee, and J. P. Kottcamp of Pratt Institute, Brooklyn, N. Y., will be among the speakers.

A seamless pipe mill which will roll tubes 6 in. in diameter and larger, equipment for which is now being manufactured in Germany, is to be erected at East Youngstown, Ohio, for the Youngstowr Sheet & Tube Co.

Sluggishness Pervades Europe

Prices Sag on Slow Orders for Most Products—Syndicate Movement Broadens—Higher Duties Asked

(By Cablegram)

LONDON, ENGLAND, Aug. 3.

PROSPECTS for re-establishment of an international railmakers' association are brighter. The next meeting will be held Sept. 23, in either London or Paris. The steel market is quiet over the holidays, but the immediate outlook is a little better, on account of the coal truce.

Export demand for pig iron is broadening. The United States has bought a further 5000 tons of hematite. The United Steel Companies, Ltd., Sheffield, has banked two blast furnaces at its Moss Bay Iron & Steel Works, Workington, and closed the Workington steel plant, owing to a shortage of coke.

Clyde shipbuilding output in July was 34 vessels launched, of an aggregate of 31,000 tons gross register.

Sheets and Tin Plate

Tin plate is quiet and easy.

Galvanized sheets are quiet and steady.

Japan is buying fair lines of black sheets.

On the Continent of Europe

The Belgian strike position is unchanged. It is feared that more plants will be obliged to close.

The German Raw Steel Association has fixed the August output at 65 per cent [of the allotted quota capacities of its members].

Depression Continues in British Circles—Decrease in Shipbuilding

LONDON, ENGLAND, July 23.—There has been little change in the position of the iron and steel markets during the past few weeks except that prices are still declining and do not show any indication of the bottom being reached. Business, however, is exceedingly dull, due in part to a fear of a stoppage at the coal mines ere long and the consequent closing down of furnaces, while the Scottish plants have closed down for their annual two weeks' holiday.

In the export markets little new business is being done, the competition from Continental producers continuing severe, but, even though their prices are much more favorable, Belgian, French, Luxemburg and German mills are experiencing difficulty in securing new orders to keep their plants in operation. Such is the position there, that even the strike, involving about 75,000 men in the iron and steel trade in Belgium, has not had the effect of halting the decline in Continental prices. The year is now well advanced and, with the holiday periods coming on, little revival is anticipated before the autumn sets in.

Meantime the production of pig iron and steel in Great Britain is at a low level and the volume of tonnage exported is equally poor. An indication of the poverty of the land and the efforts of individual firms to pare down costs is the decision of the directors of the Wigan Coal & Iron Co. further to reduce their fees, bringing them to half their original figure. The officials of the company also have agreed to a reduction of their salaries of from 2½ per cent in the lowest grades to 15 per cent in the highest grade.

One of the ancient and well-established iron firms has disappeared. The Mars Ironworks at Wolverhampton, owned by George Adams & Sons, Ltd., whose "Mars" brand of galvanized sheets, hoops and bars is world known, has shut its doors and the plant and property have been purchased by T. W. Ward, Ltd., Sheffield, for dismantling purposes.

Shipbuilding Reports

The depressed state of the shipbuilding industry is reflected in the returns of Lloyds Register for the quarter ended June 30. The amount of tonnage commenced has decreased slightly. There have been fewer launchings and work has been suspended on a larger

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British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £1, as follows:

Durham coke, del'd	£1	1½s.				$5.22		
Bilbao Rubio ore†	1	0½				4.98		
Cleveland No. 1 fdy	3	15				18.22		
Cleveland No. 3 fdy	3	11				17.25		
Cleveland No. 4 fdy	3	10½				17.13		
Cleveland No. 4 forge	3	10				17.01		
Cleveland basic	3	11½				17.37		
East Coast mixed	3	16				18.46		
East Coast hematite	4	19				24.06		
Ferromanganese	15	10				75.33		
*Ferromanganese	15	5				74.11		
Rails, 60 lb. and up	8	5	to £9	0s.		40.09	to	$43.74
Billets	6	10	to 7	5		31.59	to	35.23
Sheet and tin plate bars, Welsh	6	10	to 6	15		31.59	to	32.80
Tin plates, base box	0	18¾	to 0	19¼		4.56	to	4.68
						C. per Lb.		
Ship plates	8	2½	to 8	12½		1.76	to	1.87
Boiler plates	12	10	to 13	0		2.71	to	2.82
Tees	8	5	to 8	15		1.79	to	1.90
Channels	7	10	to 8	0		1.63	to	1.73
Beams	7	5	to 7	15		1.57	to	1.68
Round bars, ¾ to 3 in.	8	15	to 9	5		1.90	to	2.00
Galv. sheets, 24 gage	16	0	to 16	5		3.47	to	3.52
Black sheets, 24 gage	11	10				2.49		
Black sheets, Japanese specifications	15	5				3.30		
Steel hoops	10	15	and 12	10*		2.33	and	2.71*
Cold rolled steel strip, 20 gage	16	0				3.47		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron: (a)								
Belgium	£3	1s.	to £3	2s.		$14.82	to	$15.06
France	3	1	to 3	2		14.82	to	15.06
Luxemburg	3	1	to 3	2		14.82	to	15.06
Basic pig iron: (a)								
Belgium	3	0	to 3	1		14.58	to	14.82
France	3	0	to 3	1		14.58	to	14.82
Luxemburg	3	0	to 3	1		14.58	to	14.82
Billets:								
Belgium	4	14				22.84		
France	4	14				22.84		
Merchant bars:						C. per Lb.		
Belgium	5	8				1.17		
Luxemburg	5	8				1.17		
France	5	8				1.17		
Joists (beams):								
Belgium	5	4				1.13		
Luxemburg	5	4				1.13		
France	5	4				1.13		
Angles:								
Belgium	5	18½	to 6	0		1.28	to	1.30
⅛-in. plates:								
Belgium	6	10				1.41		
Germany	6	10				1.41		
⅜-in. ship plates:								
Luxemburg	6	9				1.40		
Belgium	6	9				1.40		

(a) Nominal.

amount of tonnage than was the case a year ago. The tonnage under construction in Great Britain and Ireland—1,093,587 tons gross register—was about 72,000 tons less than at the end of March, 1925, and about 423,000 tons less than that building twelve months ago. The tonnage on which work was suspended at the end of June, 1925, amounted to 76,000 tons, as compared with 52,000 tons at the end of June, 1924. The average tonnage building during the twelve months immediately preceding the war was 1,890,000 tons, or 796,000 tons more than the present total. A slight decrease was shown in the tonnage commenced during the quarter, which was 189,805 tons, as compared with 202,352 tons during the first quarter of 1925, and the tonnage launched during the present quarter—298,161 tons—was 40,959 tons lower than for the previous three months.

Total merchant tonnage building in other countries —1,276,244 tons—is about 45,000 tons more than at the end of March, 1925. The figures for the leading countries abroad are: Germany, 407,366 tons; Italy, 212,798 tons; France, 169,485 tons; Holland, 100,682 tons, and United States, 92,001 tons. Altogether 295,309 tons were commenced abroad and 295,126 tons were launched, an increase, as compared with the previous quarter, of 39,691 tons in the tonnage commenced and of 28,025 tons in the tonnage launched. The total world tonnage under construction is 2,369,831 tons, or a decrease of 27,000 tons, as compared with the previous quarter, and is 1,076,727 tons below the highest pre-war record, reached on June 30, 1913, at 3,446,558 tons.

At present 53 steamers and motorships, each of over 1000 tons, with a total of 372,267 tons, are under construction in the world for the carriage of oil in bulk. Of these tankers 24 of 165,467 tons are under construction in Great Britain and Ireland, 12 of 105,600 tons in Germany and 10 of 54,200 tons in Holland. The tonnage of vessels now building in the world which are to be fitted with internal combustion engines amounts to 1,129,912 tons, while the tonnage of steam vessels under construction is 1,212,525 tons. The motor tonnage is thus over 93 per cent of the steam tonnage.

GERMAN MARKET REVIVES

Sharp Increase in Demand for Steel Products, with Increase in Many Prices

(By Radiogram)

BERLIN, GERMANY, Aug. 3.—After the Raw Steel Syndicate, expecting a further depression, had fixed the output for August at 65 per cent of full capacity for its members, as against 75 per cent in July, the market suddenly revived, bringing a sharp rise in prices for rolled steel, but no change in the prices of ingots, blooms and billets. Revival of the market is due partly to increasing orders in engineering branches and partly to the creation of several new syndicates, including a bars syndicate.

Prices of certain products are as follows per metric ton, with American equivalents:

Steel blooms.....112.50 m. ($27.22 per gross ton)
Steel bars.....129 m. (1.39c. per lb.)
Thin steel sheets.....190 m. (2.05c. per lb.)

AUSTRIANS ASK MORE DUTY

Need Protection Against German Imports if Profits Are to Be Made

BERLIN, GERMANY, July 19.—The Austrian iron industry has demanded better protection, in particular against imports from Germany. The demand is for a duty of 10 gold crowns per metric ton on pig iron, which is at present duty free, of 25 crowns upon ingots as against the present 8 crowns, and of 50 crowns on bars as against 25 crowns. The construction industry opposes this demand. Austria's present duties for most iron product are lower than German, and very much lower than those of Hungary, Czechoslovakia, and Jugoslavia, and the home market is so unsatisfactory, that prices have twice been cut within the last month.

Since last winter attacks have been made upon the Austrian heavy iron industry for alleged monopolistic policy in connection with the cartel with Czechoslovakia. This cartel has been in operation since Jan. 1, 1924. It was forced on Austria by the fact that the Czech iron industry was protected by relatively high duties, and, being able to charge high prices at home, could export cheaply to Austria's disadvantage. The new Austrian tariff of 1924 yielded practically no relief to the industry. The smelters' demand for a pig iron duty was rejected, and the duty on bars was reduced.

The extension of the cartel by inclusion of Jugoslav and Hungarian works is now being negotiated. The Hungarian Bima-Muranyer Ironworks Co. has already agreed to join, but difficulties have arisen with the iron concerns owned by the Hungarian state.

In general, conditions in the Austrian "heavy industry" are unsatisfactory. The coal industry is depressed, and both home sales and imports have declined. The pig iron branch is very dull, also bars and sheet. Export trade with Jugoslavia was till recently active, but is expected to decline as a result of that country's new protective tariff. The engineering branches report declining orders. Output of machine tools is only about one-third of the pre-war figure. Impending large electrification works on the state railroads are expected to improve the market.

Iron and steel production figures for the first quarter of 1925 are:

In Metric Tons

	Iron Ore	Pig Iron	Steel	Rolled Goods
1923	1,211,065	344,096	499,442	364,930
1924	711,367	266,639	369,643	293,525
Fourth quarter, 1924	47,447	13,938	52,498	52,111
First quarter, 1925	72,094	74,781	103,642	77,795

In spite of the improvement which set in last winter, the ore output in the first quarter of 1925 was only a third of that of the same quarter of 1924, the pig iron production under 70 per cent, and the steel production also much less.

Austria's foreign trade movement in fuel and metals for 1924 was:

In Metric Tons

	Imports	Exports
Coal	4,522,062	6,504
Lignite	841,069	13,880
Coke	379,658	19,689
Iron and steel products other than machinery	152,208	204,964
Pig iron	28,221	37,352
Bars	23,587	44,470
Sheets	26,381	10,748
Wire	946	20,211
Tubes	20,427	1,595
Rails	1,424	4,476

The annual report of the Alpine-Montan A.G., which entirely dominates the Austrian heavy iron and steel industry, shows a serious setback owing to the depression which followed the brief "Ruhr occupation boom." The company's iron ore output in 1924 was only 706,600 metric tons as against 1,204,500 tons in 1923; pig iron output 264,900 tons against 339,800 tons; steel ingots 237,300 tons against 322,200 tons, and rolled goods 146,200 tons against 198,300 tons. Net profits are estimated at 2,135,000,000 paper crowns; but this profit is shown only by paying taxes totaling 15,184,000,000 crowns with money taken from reserve; and the real result of the year's operations was a heavy loss. The dividend has been passed. The present prospect is described as relatively favorable. The number of employees is 50 per cent greater than during the worst period of 1924. Present production of iron and steel is about 75 per cent of the pre-war figure.

FRENCH MARKET SLOW

Iron and Steel Orders Small—Less Activity in Sheet Production

PARIS, FRANCE, July 24.—The tiny stream of orders is only just holding its own, but it seems a favorable sign, as it makes its appearance at a time when holidays are already begun. A rally might be brought about if the 4 per cent loan were successful, if our difficulties in Morocco were settled and if no new cloud were to darken the political horizon.

Pig Iron.—The phosphorus pig iron market shows more activity, to the extent that the quota allotted by the O. S. P. M. to the Audun-le-Tiche works of the Société Métallurgique des Terres-Rouges was disposed of already by the third of the current month. It is probable that July prices will prevail over August, with perhaps a slight modification on the decreased rates for tonnage, tending rather to a rise than to a decrease.

Pig iron producers, at present, are disposing by export of at least two-fifths of their production which has not been transformed into basic steel or open-hearth. Yet one can hardly affirm that export business is brilliant, for prices continue much discussed, particularly so by Great Britain, and this does not tend to mend matters. Quotations read 320 to 325 fr. Belgian currency ($14.95 to $15.19), f.o.b. Antwerp.

As to hematite, a rather good current of orders secures, for several weeks to come, occupation for the greater part of works, a thing which has not been evident for a long time. Prices vary extremely: in the East, quotations read 430 to 440 fr. ($20.64 to $21.12) per gross ton at works; in the Lyons region, 435 fr. ($20.88); whereas in the Center, some producers quote 420 to 430 fr. ($20.16 to $20.64), delivered; in the Southwest, 430 to 440 fr., delivered.

Semi-Finished Products.—Market keeps fairly steady. Basic steel entente prices are well adhered to; as concerns open-hearth steel, slabs are quoted at 49 fr. ($23.52) per gross ton; blooms and billets, 48 fr. ($23.04); half-hard blooms are at 50.50 fr. per 100 kg. ($24.24). Export sellers and buyers are equally scarce, which does not render things easier; quotations this week, f.o.b. Antwerp, blooms, £4 10s. to £4 12s. ($21.87 to $22.35); billets, £4 16s. to £4 17s. ($23.32 to $23.56); largets, £5 ($24.30).

Rolled Steels.—The rally noted at the beginning of the month continues, but merchant steels seem to be the greater beneficiaries. Relatively to the ententes, only the agreement concerning prices exists; infringements have been noted, committed by works at a loss for orders. The overseas market is bad, by reason of the political developments and because of the financial crisis prevailing in the greater part of the consuming countries. Prices are irregular, unsteady and nominal. Beams are quoted £5 3s. to £5 4s. (1.11c. to 1.13c. per lb.); bars, £5 8s. (550 to 560 French francs per metric ton, or 1.17c. per lb.).

Sheets.—Situation unmodified with regard to sheets for construction. For 50 to 100 tons, prices are 89 fr. (1.91c.) net delivered Center region, delivery in 15 days to a month. Medium sheets, 91 fr. delivered (1.95c.). Light sheets, 111.50 fr. (2.39c.), delivery from five to six weeks; the greater part of outsiders quote higher rates than those of the O. S. P. M. [syndicate].

Export producers show less activity; this has not kept prices from decreasing, being quoted this week, f.o.b. Antwerp, £6 7s. 6d. to £6 8s. (1.38c. to 1.39c.).

Wire Products.—The better sentiment of last week still prevails, with the result that prices have a tendency to harden. Wire rods are quoted £5 12s. to £5 12s. 6d. ($27.21 to $27.33).

CARTEL MOVEMENT GAINS

European Export Associations Increasing as Competition Becomes More Severe

WASHINGTON, Aug. 4.—European iron and steel producers, faced with diminishing markets, are forming in increasing numbers what would be known in this country as export associations of manufacturers but are referred to abroad as "comptoirs, cartels" and the like.

A report received by the Department of Commerce states that while discussions are going on in London and Brussels for the purpose of establishing a comptoir for the export of rails among France, Germany, Belgium, England and Luxemburg, the long proposed accord among the principal European countries with iron and steel producing facilities is again being suggested. Sharp bidding for metal contracts in Africa, Asia and South America has at times compelled the comptoirs to cut prices to a point below production costs. The problems of sales quotas and of prices in such an accord are so complex that in many of the countries it is considered very questionable whether a universal agreement can be reached.

Another report, received from Consul A. W. Kliefoth, Berlin, says that since German exporters are hampered by a too high cost of production an agreement has been reached between the Raw Steel Association and the Iron and Steel Goods Association on the one side and the Association of German Machine Building Enterprises on the other hand, by which raw materials will be delivered to exporting firms at world market prices, provided that it can be shown that these raw materials are required for export purposes. It is hoped by those interested that this measure will increase exports and will induce the south German refining industry to give up its opposition to a protective duty for the Rhenish-Westphalian industry.

Consul R. W. Heingartner, Vienna, points out that Austrian iron and steel products are altogether controlled by cartels. He adds:

"Not only are the iron and steel works under the control of the 'Alpine Montangesellschaft' but already in 1923 this company found ways and means to sign a cartel agreement with the Czechoslovak iron works which came into operation at the beginning of 1924 and cannot be terminated until 1927. The six biggest Austrian iron firms which control the sales of products of the iron and steel industries have joined in the so-called 'Red Iron Syndicate' which in its turn is under orders of the 'Alpine' and must transmit to it all orders. Besides coal the most important raw material for iron and steel production is scrap iron. Here too all scrap iron consumers have formed a cartel.

"This so-called 'Scrap Iron Trade Association' comprises among its members the five biggest scrap iron firms, Bueckner & Soehne, Pollitzer & Wertheim, Theodor Schnecker, Bernhard Wininger, and Neumann & Co. The trust dominates the scrap iron market completely.

"Austria having issued an absolute and general prohibition of exports of scrap iron, any person wishing to export this article must address a request to the association mentioned above and the Minister of Commerce only grants the permit to this cartel. The scrap iron cartel of Austria thus establishes practically a monopoly of consumption and fixes prices as it wishes."

The Saginaw Malleable Iron Foundries of the General Motors Corporation have contracted with the Pittsburgh Electric Furnace Corporation for a battery of Moore "Rapid 'Lectromelt" malleable iron furnaces, of a capacity of 24 tons of malleable iron per hour. The malleable iron will be used in the new foundry, which is being equipped with continuous chain type molding, pouring and shake-out tables and with Dressler continuous type annealing furnaces. The new foundry addition will be built by the Austin Construction Co., Cleveland.

JULY IRON OUTPUT

Net Gain of 1 Furnace—8 Blown In and 7 Shut Down

Daily Rate 3179 Tons Less Than June, a Decrease of 3.6 Per Cent

Production of pig iron in July showed a moderate recession in daily rate from that of June with a net gain of one blast furnace. This may indicate a turn in the downward trend which set in in April. The daily rate in July was 85,936 tons or 3179 tons less than the June rate—a decrease of about 3.6 per cent.

The production of coke pig iron for the 31 days in July amounted to 2,664,024 tons or 85,936 tons per day, as compared with 2,673,457 tons or 89,115 tons per day for the 30 days in June. The July output is the lowest for the year, but is over 28,300 tons per day higher than July, a year ago.

There were 8 furnaces blown in and 7 blown out or banked during July, a net gain of 1. This brings the number active on August 1 to 190. The daily capacity of these 190 stacks on August 1 is estimated at about 86,420 tons per day compared with 86,250 tons per day for the 189 furnaces active on July 1. Of the 7 furnaces shut down last month, 3 were independent steel company stacks, 3 were merchant furnaces and 1 was a Steel Corporation unit. Four merchant stacks were blown in during July.

Ferromanganese output in July of 16,614 tons was the smallest this year. The 5074 tons of spiegeleisen produced was close to the average per month for the first six months.

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1921—Gross Tons

	1921	1922	1923	1924	1925
Jan.	77,945	53,063	104,181	97,384	108,720
Feb.	69,187	58,214	106,935	106,026	114,791
Mar.	51,468	65,675	113,673	111,809	114,975
Apr.	39,768	69,070	118,324	107,781	108,632
May	39,394	74,409	124,764	84,358	94,542
June	35,494	78,701	122,548	67,541	89,115
½ year	52,089	66,578	115,147	95,794	105,039
July	27,889	77,592	118,656	57,577	85,936
Aug.	30,780	58,586	111,274	60,875	.....
Sept.	32,850	67,791	104,184	68,442	.....
Oct.	40,215	85,092	101,586	79,907	.....
Nov.	47,183	94,990	96,476	82,656	.....
Dec.	53,196	99,577	94,225	95,539	.....
Year	45,325	73,645	109,713	85,075	.....

Production of Coke and Anthracite Pig Iron in United States by Months, Beginning Jan. 1, 1923—Gross Tons

	1923	1924	1925
Jan.	3,229,604	3,018,890	3,370,336
Feb.	2,994,187	3,074,757	3,214,143
Mar.	3,523,868	3,466,086	3,564,247
Apr.	3,549,736	3,233,428	3,258,958
May	3,867,694	2,615,110	2,930,807
June	3,676,445	2,026,221	2,673,457
½ year	20,841,534	17,434,492	19,011,948
July	3,678,334	1,784,899	2,664,024
Aug.	3,449,493	1,887,145	.....
Sept.	3,125,512	2,053,264	.....
Oct.	3,149,158	2,477,127	.....
Nov.	2,894,295	2,509,673	.....
Dec.	2,920,982	2,961,702	.....
Year*	40,059,308	31,108,302	.....

*These totals do not include charcoal pig iron. The 1924 production of this iron was 212,710 tons.

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works	Merchant	Total
July, 1924	43,353	14,224	57,577
August	45,591	15,284	60,875
September	50,312	18,130	68,442
October	59,952	19,955	79,907
November	63,230	20,426	83,656
December	76,682	18,857	95,539
January, 1925	86,856	21,864	108,720
February	90,707	24,084	114,791
March	90,741	24,234	114,975
April	83,827	24,805	108,632
May	74,415	20,127	94,542
June	70,452	18,663	89,115
July	65,715	20,221	85,936

Furnaces In and Out

Among the furnaces blown in during July were the following: One furnace of the Wickwire Steel Co. in the Buffalo district and the Standish furnace at Standish, N. Y.; the Sheridan furnace in the Lebanon Valley; one Alliquippa furnace of the Jones & Laughlin Steel Corporation in the Pittsburgh district; the Sharpsville furnace in the Shenango Valley; one Bessemer furnace of the Tennessee Coal, Iron & Railroad Co. in Alabama and the Thomas furnace in Wisconsin.

Among the furnaces blown out or banked during July were the following: The Stewart furnace in the

Production of Steel Companies—Gross Tons

	Total Production†		Spiegeleisen and Ferromanganese* 1924		1925	
	1924	1925	Fe-Mn	Spiegel	Fe-Mn	Spiegel
Jan.	2,274,005	2,692,537	20,735	7,948	23,578	5,418
Feb.	2,410,658	2,539,785	22,405	9,870	18,184	4,910
Mar.	2,674,565	2,812,995	22,351	13,796	20,062	5,449
Apr.	2,463,027	2,514,828	23,580	4,240	21,448	5,341
May	1,927,461	2,306,887	14,993	9,336	22,679	5,294
June	1,507,110	2,113,566	20,049	9,405	19,836	4,972
½ year	13,256,826	14,980,598	124,113	54,595	125,787	31,384
July	1,343,952	2,037,160	14,367	15,328	16,614	5,074
Aug.	1,413,314	.....	10,718	8,010	.....	.....
Sept.	1,509,360	.....	13,263	5,033	.....	.....
Oct.	1,858,502	.....	7,780	10,047	.....	.....
Nov.	1,896,886	.....	13,448	8,835	.....	.....
Dec.	2,377,141	.....	21,220	5,284	.....	.....
Year	23,656,981	.....	204,909	107,132	.....	.....

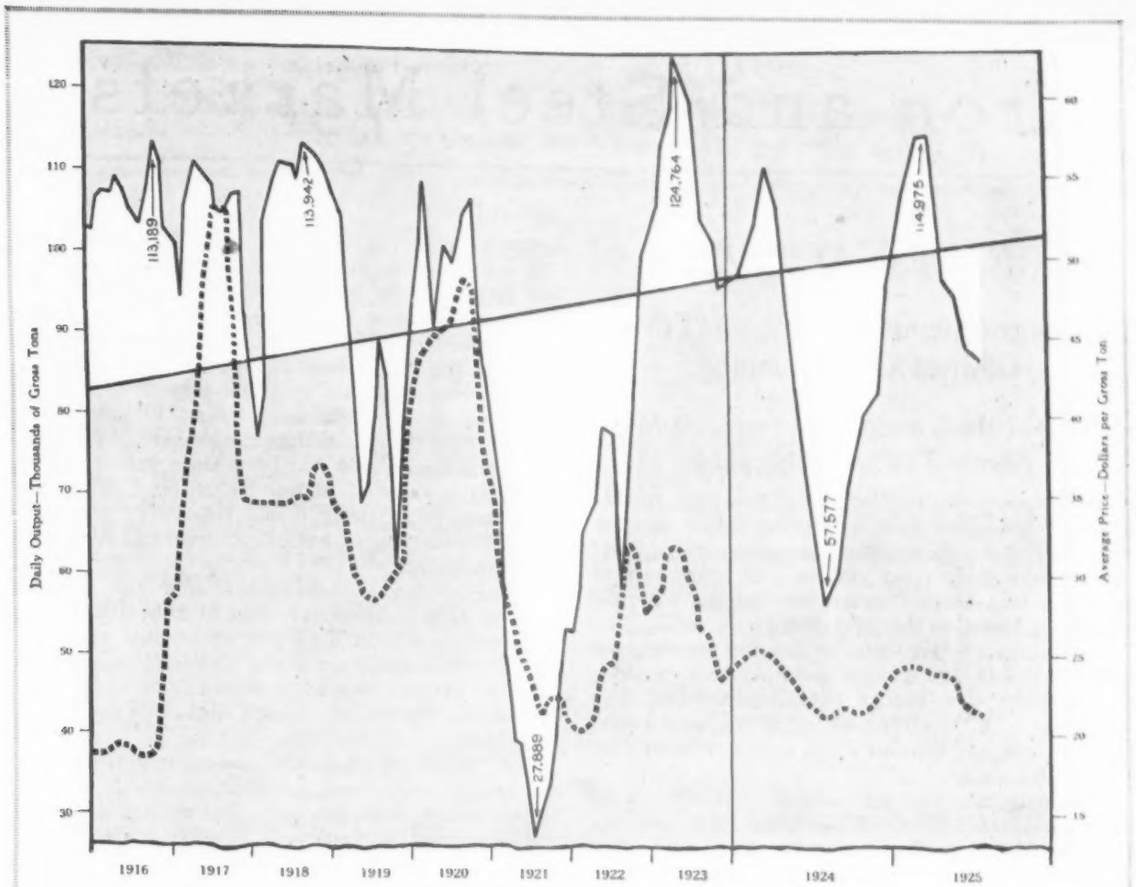
*Includes output of merchant furnaces.
†Ferromanganese and spiegeleisen included.

Pig Iron Production by Districts, Gross Tons

	July (31 days)	June (30 days)	May (31 days)	April (30 days)
New York	148,443	137,889	143,770	192,405
New Jersey	.....	.....	.....	.....
Lehigh Valley	66,861	63,882	70,618	81,612
Schuylkill Valley	63,803	59,789	61,427	67,030
Lower Susquehanna and Lebanon Valleys	33,046	32,053	32,322	40,191
Pittsburgh district	471,285	482,870	582,356	668,623
Shenango Valley	90,171	87,773	88,589	125,322
Western Pa.	78,999	101,614	117,812	135,366
Maryland, Virginia and Kentucky	71,287	73,121	84,766	94,550
Wheeling district	110,029	101,738	110,328	126,385
Mahoning Valley	285,278	274,452	287,521	319,973
Central and Northern Ohio	311,563	309,332	322,959	306,483
Southern Ohio	45,043	43,208	47,450	42,999
Illinois and Indiana	520,666	543,622	595,273	635,479
Mich., Minn., Mo., Wis., Colo. and Utah	137,871	127,631	138,073	130,840
Alabama	224,837	229,453	241,611	285,351
Tennessee	4,842	5,030	5,932	6,349
Total	2,664,024	2,673,457	2,930,807	3,258,958

Coke and Anthracite Furnaces in Blast

Location of Furnaces	Total Stacks	Aug. 1 In Blast	Aug. 1 Capacity per Day	July 1 In Blast	July 1 Capacity per Day
New York:					
Buffalo	22	11	4,635	10	4,520
Other New York	5	1	200	0	....
New Jersey	4	0	....	0	....
Pennsylvania:					
Lehigh Valley	12	5	1,995	5	1,960
Spiegel	2	1	160	1	165
Schuylkill Valley	15	6	2,055	6	1,915
Lower Susquehanna	8	2	780	2	880
Ferromanganese	1	1	65	1	65
Lebanon Valley	4	1	210	1	200
Ferromanganese	2	1	90	0	....
Pittsburgh District	53	30	15,775	28	14,700
Ferro and Spiegel	4	2	315	2	325
Shenango Valley	16	6	2,910	6	2,850
Western Pa.	21	5	2,220	6	2,560
Ferro and Spiegel	2	1	150	1	160
Maryland	5	4	1,615	3	1,360
Ferromanganese	1	0	....	1	115
Wheeling District	14	8	3,550	8	3,390
Ohio:					
Mahoning Valley	28	17	9,200	17	9,190
Central and Northern	22	18	10,050	18	10,300
Southern	13	5	1,450	5	1,440
Illinois and Ind.	42	28	16,760	29	17,500
Mich., Wis. and Minn.	12	8	3,245	7	2,610
Colo., Mo. and Utah	6	2	850	4	1,630
The South:					
Virginia	17	2	355	2	255
Ferromanganese	1	0	....	0	....
Kentucky	7	1	325	1	315
Alabama	38	23	7,300	24	7,680
Ferromanganese	1	0	....	0	....
Tennessee	14	1	160	1	165
Total	392	190	86,420	189	86,250



Daily Output in July About 3.5 Per Cent Under June; Prices Again Lower

Inclined line represents the gradually increasing theoretical needs of the country, and thus shows production in recent months less than the so-called normal. Dotted line represents the average price in dollars per gross ton of No. 2 Southern at Cincinnati, No. 2 at Chicago and No. 2X at Philadelphia

Shenango Valley; the Scottdale furnace in western Pennsylvania; one Gary furnace in the Chicago district; two furnaces of the Colorado Fuel & Iron Co. in Colorado; one Bessemer furnace of the Tennessee Coal, Iron & Railroad Co. and one furnace of the Woodward Iron Co. in Alabama.

Sustained Operations in Mahoning Valley

YOUNGSTOWN, Aug. 4.—Finishing mill schedules in the Mahoning Valley show a moderate betterment in the first days of August, as compared with the final week in July, but steel ingot production is slightly less. However, the general average of 70 per cent production, which has been upheld the past few weeks, is little if any changed.

Tube mill output is well maintained at 75 per cent with skelp mill operations on a parity.

Independent bar mill operations embrace every unit in the district, while production, including that of the Steel Corporation mills, averages 85 per cent. Of 127 sheet and jobbing mills in the Valley, from East Youngstown to Newton Falls, 90 were scheduled to start the Sunday midnight shift.

The Trumbull Steel Co. started 27 of its 29 tin mills at its Warren and Leavittsburg properties, while the Falcon Tin Plate Co. has eight of nine such units at its Canton works under power.

It is officially stated that July shipments of the Youngstown Sheet & Tube Co. will be little, if any, under those of June. As a rule, sales executives of Valley independents are optimistic about the volume of business which is coming forward, but they are still dissatisfied with prices.

Makers are holding firm at $35 for sheet bars, but it is likely slabs and billets could be bought for $1.50 per ton less.

Now 392 Blast Furnaces in the Country

Four more blast furnaces have been removed from the list of possible active stacks.

As announced in THE IRON AGE of July 23, the American Steel & Wire Co. is tearing down its Emma (Newburgh) furnace at Cleveland.

The Carnegie Steel Co. has formally abandoned its Franklin and Steelton furnaces at Columbus.

The Colorado Fuel & Iron Co., Denver, has authorized the dismantling of one of its furnaces, leaving four for regular operations.

The loss of these four furnaces brings the total number of coke blast furnaces in the country, capable of making pig iron, to 392.

Blast Furnace Notes

The Belfont Steel & Wire Co., Ironton, Ohio, will blow out its furnace this month for relining.

The American Rolling Mill Co. will put its second furnace at Columbus, Ohio, in blast early this month.

A cast steel roll which weighs 152,000 lb. and required 217,000 lb. of molten steel has been completed at its Vandergrift, Pa., works by the United Engineering & Foundry Co. The finished body size of the roll is 50 in. in diameter by 204 in. long. The overall length of this roll is 24 ft. It was cast for the plate mill at Coatesville, Pa., of the Lukens Steel Co., installed nine years ago and the largest plate mill ever constructed. It was necessary to manufacture special roll equipment to complete this job.

Exports of refined tin from the Straits Settlements in June totaled 5785 gross tons, the United States taking 57 per cent, Great Britain, 31 per cent, and Continental Europe, 12 per cent.

Iron and Steel Markets

GREATER ACTIVITY

Pig Iron Output Close to a Turn—Gain of One Furnace

Buying of Rails and Cars—Demand Much Above That of July, 1924

Three encouraging features of the week in iron and steel are better railroad buying, a fair increase in orders from manufacturing consumers of steel and in some cases from jobbers, and a net gain of one in active blast furnaces in July, after four months of losses, to the total of 65.

Last month's pig iron production showed the smallest loss in five months, pointing to a probable upward turn, even though slight, in August. The July total was 2,664,024 tons, or 85,936 tons a day, against 2,673,457 tons in June, a 30-day month, or 89,115 tons a day.

The merchant furnaces actually increased their output last month by about 1500 tons a day. But the steel companies produced roundly 4700 tons a day less than in June, which indicates that the steel ingot figures which come out next week will show a falling off from June.

Eight blast furnaces went out in July and seven were blown in. Thus 190 furnaces were going on Aug. 1, with capacity of 86,420 tons a day, against 189 furnaces and 86,250 tons daily capacity on July 1. Two steel corporation furnaces have started up since Aug. 1, one at Lorain, Ohio, and one in the Pittsburgh district.

Chicago, which lately has had a less cheerful market than Pittsburgh, in view of the lack of car orders, reports more railroad demand this week. The Chicago & Northwestern unexpectedly has bought 10,000 tons of rails. The Great Northern has placed with the Bethlehem Steel Co. 10,000 tons of rails, together with angle bars, and is about to buy 15,000 to 20,000 tons more. Over against a generally good prospect for early placing of 1926 rail contracts is the fact that the Pennsylvania Railroad has specified on a minor part of what it bought for 1925.

While the extent of car buying in the next few months is in doubt, the past week has yielded a total of 2750 cars in three orders—1000 each for the Central of Georgia and the Missouri, Kansas & Texas and 750 for the Texas & Pacific.

Whether or not it marks a turn in demand, the specifications of a leading Chicago producer of heavy rolled steel have exceeded shipments the past week for the first time since March. The new business of the same company was larger than for any other week of the year save one.

The Steel Corporation's operations continue at about 70 per cent of capacity. Its report of unfilled orders as of July 31 is expected to show a considerably smaller falling off than for several months.

Assuming that the anthracite miners will strike and look for Government intervention, the coke and pig iron trades are giving attention to the effect on coke. The market is firmer in tone but not yet in price. Two furnace interests have closed for 12,000 tons a month, each of beehive coke for the next five months at close to $3 a ton. Some quiet stocking of coal is going on against the advance looked for in case of an anthracite strike.

Pig iron producers look for some help from a hard coal stoppage in their effort to get better prices, but thus far the market is unchanged. Low phosphorus iron has been more active in the East, with sales of about 15,000 tons, of which 5000 tons was British iron. In eastern Pennsylvania 10,000 tons of basic iron was sold at about $20.50 delivered.

Steel companies are emphasizing the market gains in July business over that of July, 1924. One large company with a variety of product puts the increase at 60 to 65 per cent. Generally some gain over the present rate of bookings is looked for in August and September, though with little change in prices apart, possibly, from sheets.

The leading producer of sheets and tin plates had larger orders and specifications in July than in any month since January. Additional tin plate mills were put on last week to meet a special demand from the canning industry.

Activity keeps up in line pipe. A new contract from east Texas is for 120 miles of 8-in. pipe and the Humble Oil Co., is figuring on a considerable extension.

Structural steel work showed a sharp decline from the previous week, totaling only 28,500 tons. Great Northern ore docks in Wisconsin account for 4000 tons. New work up for bids amounts to 20,000 tons.

Pig iron, as measured by THE IRON AGE composite price, has stood at $18.96 for five successive weeks. Previous to this it had not been below $19 since early April, 1922.

Finished steel remains at 2.439c. per lb., according to THE IRON AGE composite price. This is slightly higher than the low point reached in June, which was the lowest since September, 1922.

Pittsburgh

Increasing Demand Last Month Expected to Continue in August

PITTSBURGH, Aug. 4.—The steel trade derives a generous measure of satisfaction from the fact that July, which is expected to be a dull month, has been so much better in sales, shipments and production than the same month last year. It is now figured that July ingot production will be slightly more than 60 per cent of capacity, which compares with 41½ per cent in July last year, this showing being made possible by the steady increase in the volume of business in the last two weeks of the month. With last month making such a favorable showing in output as compared with July last year, steel makers naturally incline to the belief that this month and next will show almost as great corresponding gains over the same months of last year, this based on the premise that recent buying has plainly indicated broken, if not deficient, stocks in second hands, while nothing has developed to suggest

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 4, 1925	July 28, 1925	July 7, 1925	Aug. 5, 1924
No. 2X, Philadelphia‡	$21.26	$21.26	$21.26	$21.26
No. 2, Valley Furnace†	18.50	18.50	18.50	19.00
No. 2, Southern, Cin'ti†	22.55	22.55	22.05	21.55
No. 2, Birmingham, Ala.†	18.00	18.00	18.00	17.50
No. 2 fdy., Chcgo. furn.*	20.50	20.50	20.50	20.00
Basic, del'd, eastern Pa.	*20.50*	21.50	21.50	20.00
Basic, Valley furnace	18.00	18.00	18.00	19.00
Valley Bessemer del. P'gh.	20.76	20.76	20.76	21.76
Malleable, Chicago furn.*	20.50	20.50	20.50	20.00
Malleable, Valley	18.50	18.50	18.50	19.00
Gray forge, Pittsburgh	19.76	19.76	19.76	20.26
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	115.00	115.00	115.00	99.00
Rails, Billets, Etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	35.00	35.00	35.00	38.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	38.00
O.-h. sheet bars, P'gh.	35.00	35.00	35.00	38.00
Forging billets, base, P'gh.	40.00	40.00	40.00	43.00
O.-h. billets, Phila.	40.36	40.30	40.30	43.17
Wire rods, Pittsburgh	45.00	45.00	45.00	48.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	2.00
Light rails at mill	1.60	1.60	1.70	1.85
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	*2.17*	2.22	2.22	2.42
Iron bars, Chicago	1.90	1.90	2.00	2.20
Steel bars, Pittsburgh	2.00	2.00	2.00	2.15
Steel bars, Chicago	2.10	2.10	2.10	2.15
Steel bars, New York	2.34	2.34	2.34	2.49
Tank plates, Pittsburgh	1.90	1.90	1.90	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.25
Tank plates, New York	2.14	2.14	2.14	2.09
Beams, Pittsburgh	2.00	2.00	2.00	2.00
Beams, Chicago	2.10	2.10	2.10	2.25
Beams, New York	2.24	2.24	2.34	2.34
Steel hoops, Pittsburgh	2.40	2.40	2.40	2.60

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Aug. 4, 1925	July 28, 1925	July 7, 1925	Aug. 5, 1924
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.15	3.15	3.10	3.40
Sheets, black, No. 28, Chicago dist. mill	3.30	3.30	3.30	...
Sheets, galv., No. 28, P'gh.	4.20	4.20	4.15	4.50
Sheets, galv., No. 28, Chicago dist. mill	4.30	4.30	4.35	...
Sheets, blue, 9 & 10, P'gh.	2.30	2.30	2.30	2.60
Sheets, blue, 9 & 10, Chicago dist. mill	2.40	2.40	2.45	...
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago dist. mills	2.70	2.70	2.70	...
Plain wire, Pittsburgh	2.50	2.50	2.50	2.60
Plain wire, Chicago dist. mill	2.55	2.55	2.55	...
Barbed wire, galv., P'gh.	3.35	3.35	3.35	3.55
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	...
Tin plate, 100 lb. box, P'gh.	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$17.50	$17.50	$17.00	$17.00
Carwheels, Philadelphia	**18.50**	18.00	17.00	17.50
Heavy steel scrap, P'gh.	18.50	18.50	17.50	17.50
Heavy steel scrap, P'gh.	16.00	16.00	15.50	16.00
Heavy steel scrap, Ch'go.	**16.25**	16.00	15.50	15.50
No. 1 cast, Pittsburgh	**17.50**	17.00	17.00	18.00
No. 1 cast, Philadelphia	18.00	18.00	17.50	17.00
No. 1 cast, Ch'go (net ton)	17.50	17.50	17.50	17.50
No. 1 RR. wrot. Phila.	17.50	17.50	18.00	18.00
No. 1 RR.wrot.Ch'go (net)	**15.00**	14.50	14.00	13.50
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$2.90	$2.90	$2.75	$3.00
Foundry coke, prompt	3.75	3.75	3.75	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	**14.62½**	14.50	14.00	13.25
Electrolytic copper, refinery	**14.37½**	14.12½	13.62½	13.12½
Zinc, St. Louis	**7.50**	7.30	7.10	6.17½
Zinc, New York	**7.85**	7.65	7.45	6.52½
Lead, St. Louis	**8.00**	8.20	7.85	7.37½
Lead, New York	**9.00**	8.50	8.10	7.65
Tin (Straits), New York	**59.25**	58.37½	57.50	51.75
Antimony (Asiatic), N. Y.	**17.75**	17.00	18.50	9.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

THE IRON AGE Composite Prices

Aug. 4, 1925, Finished Steel, 2.439c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.		
	One week ago,	2.439c.
	One month ago,	2.431c.
	One year ago,	2.524c.
	10-year pre-war average	1.689c.

Aug. 4, 1925, Pig Iron, $18.96 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.		
	One week ago,	$18.96
	One month ago,	18.96
	One year ago,	19.29
	10-year pre-war average,	15.72

High				Low		
1923	1924	1925		1925	1924	1923
2.824c. April 24	2.789c., Jan. 15	2.560c., Jan. 6	Finished Steel	2.424c., June 23	2.460c., Oct. 14	2.446c., Jan. 2
$30.86, March 20	$22.88, Feb. 26	$22.50, Jan. 13	Pig Iron	$18.96, July 7	$19.21, Nov. 3	$20.77, Nov. 20

any decrease in the rate of consumption over the next few months.

Railroad buying is largely absent, but there is no disposition to accept that condition as more than temporary. Demands of the oil and gas industry for pipe still are growing. The automotive industry is consuming steel at a greater rate than many thought possible at this time. Greater price stability is bringing better business in sheets and the rush for tin plate supplies continues. The leading producer of these lines reports July as its best month in orders and specifications of sheets since last January and to meet the demand for tin plate found it necessary last week to put on additional mills and to work all mills an extra turn. This activity in tin plate is a reflection of the excellent packing crop prospect. The general crop prospect is good enough to encourage the idea that the farmers will be heavier buyers of steel articles than they have been in recent years. There is an unusually large volume of structural steel. It is not surprising, therefore, to hear the suggestion that if railroad buying starts, the final quarter of the year should be one of marked activity.

Although steel company earnings statements for the second quarter of the year have uniformly made a better showing than had been looked for, it is generally urged that the profits shown resulted more from economies in production than from the prices obtained.

The complaint that sheets and wire products are too low is a common one and fresh efforts are being made to put sheets on a more profitable basis. Several makers have this week advanced quotations on galvanized sheets to 4.30c., base, Pittsburgh, and some now are talking 3.20c., base, Pittsburgh, as the minimum price on black sheets. Relatively greater weakness developed in sheets than in other products during the second quarter of the year and it is natural that as prices went to unprofitable levels there now should be an effort to correct the situation.

In a general way, the current demand is not of a kind that seriously tests prices. Buyers want small lots in a great hurry to meet pressing demands and the price in such cases is secondary to delivery.

July saw no change in the number of active blast furnaces in this and nearby districts. The late gain in steel ingot production has been seen less in the starting up of idle capacity than in the working more fully of capacity that had been in operation. Companies which could work only four or five days a week a month ago have been getting in six days lately on account of the larger orders. The primary markets show little activity, but they are firm. Scrap is scarce.

Pig iron is considered to be too low in relation to costs for much pressure to be taken to sell it and fuel prices are influenced by the possibility that there will be a suspension of the hard coal mines.

Pig Iron.—The past week has been productive of no large orders, but the dullness is due not as much to a lack of interest on the part of melters as it is to a firm price attitude on the part of producers. The latter note only a moderate production, since in this and nearby districts only three or four furnaces are active on iron for the market. Also old orders are making constant inroads upon furnace yard stocks. There is a possibility that there will be a suspension of the hard coal mines, since just now it does not look as if the operators and miners would work out a new agreement to become effective with the expiration of the present one in September. Such an eventuality might well mean a demand for coke as a substitute for hard coal, with the attendant strengthening of coke prices. Already, merchant pig iron producers are asking 50c. per ton more on fourth quarter tonnages than they will take for current deliveries. A number of firm offers of $18, Valley furnace, for No. 2 foundry iron, some of them for fair sized lots, have been made lately, but they have found no acceptance. The market now is firm at $18.50, Valley furnace for this grade, where recently it was barely steady. Basic does not appear available at less than $18, Valley furnace, nor Bessemer at less than $19, while for delivery later in the year, asking prices generally range 50c. a ton higher. July averages of W. P. Snyder & Co. on iron from Valley furnaces were $18 for basic and $19 for Bessemer, this being the first month this year that there has not been a decline from the previous month. Basic iron averaged $1 a ton lower than in July last year and Bessemer $1.14 lower.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$18.00
Bessemer	19.00
Gray forge	18.00
No. 2 foundry	18.50
No. 3 foundry	18.00
Malleable	18.50
Low phosphorus, copper free	$27.75 to 28.00

Ferroalloys.—It develops that British makers of ferromanganese had planned on an advance in prices in the event of a strike of the British coal miners, but a temporary settlement of the dispute having been reached, the idea of the advance has subsided. While there is a belief that consumers in this district will have to buy soon as a result of exhaustion of stocks, there is no sign yet of large requirements and there is very little activity except in small lots for early delivery, which would indicate that consumers were not inclined to expect higher prices. It is believed here that some of the recent sales in the Chicago district went at a delivered price of less than $15, plus freight from New Orleans. New business in other ferroalloys is light. Prices are given on page 385.

Semi-Finished Steel.—Prices of billets, slabs and sheet bars are holding. With finished products moving with a little more snap than was true recently, specifications against contracts are heavier and producers have less steel for open market sale than they had when contract buyers were more sparing in their takings. Suggestions still are heard of the availability of billets and slabs at as low as $33.50, Youngstown, but Pittsburgh makers disclaim having gone below $35 and local mills that buy their steel say they have no success in getting steel rolled to specification at less than $35. Improvement in sheet business, which appears to be extending to prices, has made makers of sheet bars firmer as to prices and if there was any disposition to go below $35, Pittsburgh or Youngstown, it has pretty well disappeared. The market is steady on wire rods and no weaker on skelp than it has been. With no material change in the number of steel-making units in operation, the production is up somewhat from where it was a month ago, because most companies now are running the full week instead of four or five days a week as was the case a few weeks ago. Prices are given on page 385.

Wire Products.—There is no large forward buying, but evidence that jobbers and manufacturing consumers are lightly stocked is found in not only the frequency of the orders, but the insistence of buyers for early deliveries. The bright outlook for the crops encourages expectations that the demand from the agricultural districts will be heavier this fall than it was last year. There is little if any shading of present prices, which are regarded by all makers here as too low. It is intimated that nails should be selling at $2.75 or $2.80, base, per keg, Pittsburgh, to yield a reasonable profit. Prices are given on page 384.

Rails and Track Supplies.—Railroads tributary to Pittsburgh have not yet done any contracting for their 1926 rail requirements, but the report persists that several important lines will soon enter the market. There is no activity in light rails, the principal outlet for which is in the coal mines and the depression in that industry also affects the sale of small spikes. Makers of tie plates report a dearth of orders. Large spikes find a steady sale, but large orders wait on rail business. Prices do not change. They are given on page 384.

Tubular Goods.—Pipe business still is good, particularly in oil well goods and in line pipe. A company with headquarters in Pittsburgh has just placed an order for 120 miles of 8-in. pipe for a line in eastern Texas. The Humble Oil Co. is reported in the market for a round tonnage of line pipe for a new development. A good distribution of recent business in line pipe has put most companies in the position of being unable to make as prompt deliveries of the larger sizes of pipe as they could a short time ago. Mill stocks of all sizes of lapweld pipe are dwindling steadily under the demands of the oil and gas producers and there is no such stock of standard pipe in the buttweld sizes as there was a short time ago, because jobbers have pretty well liquidated their stocks and making more frequent demands upon the mills. There is no forward buying to speak of, but current demands are sufficient to keep pipe capacity more than 80 per cent engaged. The leading producer has its Pittsburgh and Lorain plants running nearly full and has six of the ten units at Gary, Ind., going. There is still room for improvement in boiler tube business. Discounts are given on page 384.

Sheets.—Business still is on the increase in volume, although buyers still are disposed to take advantage of the fact that the mills generally are offering prompt deliveries against orders and are not buying much beyond their early requirements. Prices are holding well and in galvanized sheets, an effort is being made to get prices that will show a profit. This movement is on the part of some of the independent companies which now are asking 4.30c., base, Pittsburgh. Quotations of 3.20c., base, Pittsburgh, on black sheets are heard in some cases, but generally 3.15c., base, is the ruling one on ordinary tonnages and concessions from that figure are not entirely absent. July was the best month since last January in point of bookings with the Amer-

ican Sheet & Tin Plate Co., but current estimates are that independent company bookings will run a little behind those for June, when sales were more than 286,000 tons, or 100,000 tons in excess of those of May. Prices are given on page 384.

Tin Plate.—Pressure for deliveries against contracts still is heavy and makers are finding it necessary to speed up production to meet the delivery requirements of their customers. The American Sheet & Tin Plate Co. last week not only started a number of mills, but worked all mills at 17 turns, against the usual number of 16 per week. There is no longer any doubt as to the packing crops and container manufacturers, who a short time ago were taking out their purchases rather sparingly to avoid being too heavily stocked in the event of crop disappointments, now cannot get supplies fast enough to suit them. This has created a brisk demand for stock items. The market is firm as to prices.

Cold-Finished Steel Bars.—Business still shows an expanding tendency, but the reappearance of a price of 2.50c., base, Pittsburgh, indicates that the gain in orders has been partly at the expense of prices. The fact that automobile production has had less of a seasonal recession than usual accounts for the gain in orders for cold-finished bars and the fact that this industry buys in fairly large lots probably explains the orders of a size to induce price concessions. On ordinary tonnages, 2.60c. still is the common quotation, but on more attractive business, the price is 2.50c., base, making the market more properly quotable at 2.50c. to 2.60c., than at a single price of 2.60c.

Steel and Iron Bars.—In the Pittsburgh district, 2c. base still is regarded as the market on steel bars. Orders and specifications are steady if not in large lots. Early delivery is emphasized by buyers and the mill that makes the best promise gets the business. Iron bars also are steady in price and find a fairly good demand. Prices are given on page 384.

Structural Steel.—Fabricating companies in this district are well engaged and see considerable business immediately ahead. Fabricated steel prices are low and unprofitable, but evidently there is less loss in operation than the shutting down of the shops. The mills are getting specifications in fair fashion, but strictly new demands upon them are not particularly heavy. In Pittsburgh and immediate territory, 2c. base, Pittsburgh, is the ruling figure on ordinary tonnages of plain material, but there is no claim that this price can be obtained in competition with Eastern or Western mills. Prices are given on page 384.

Plates.—Plates still are the dullest and the price is most uncertain of the major products. There is some pending barge business that will take about 4000 tons of plates, but in a general way, the chief dependence of the plate mills at present is in line pipe, in which there have lately been some good sized orders. Small lots of plate are bringing 1.90c. base, Pittsburgh, in the Pittsburgh district, but 1.80c., Pittsburgh, is more common outside that area. Prices are given on page 384.

Hot Rolled Flats.—This line holds very firm at 2.40c. base, Pittsburgh, on narrow material, in which there is a good business, and at 2.20c. base for stock wider than 6 in.

Cold Rolled Strips.—Makers in this district are holding firmly to 3.75c. base, Pittsburgh, and appear disposed to pass up business carrying a lower bid. Bookings are fairly good, and specifications are steady, particularly from the automobile builders.

Bolts, Nuts and Rivets.—One maker has advanced prices on semi-finished and castellated and slotted nuts, but others here and in outside districts still are holding to former discounts. Bolts and nuts are in steady demand and a good many orders call for such prompt delivery as to suggest small stocks in second hands. Rivets are not very active, buyers showing a marked aversion to forward buying. Prices and discounts are given on page 385.

Coke and Coal.—In tone but not yet in price, the market is firmer. The idea is gaining ground that there will be a suspension of operations of the anthracite mines on September 1 and this will bring about a demand for coke and in turn for soft coal as a substitute and with higher prices. Two contracts for about 12,000 tons of beehive oven furnace coke a month for the remainder of the year are reported to have been closed lately at an average price of around $3 per net ton at ovens. Buyers were furnace interests which hitherto have been using by-product coke and the supposition is that former sources were disposed to reserve the coke for a more profitable market in the event of a hard coal strike. Some quiet stocking of coal is going on in anticipation of higher prices that would result from a tieup of the hard coal mines and while supplies still are ample for wants, the market is not so weak in tone as it was recently. Prices are given on page 385.

Old Material.—The market still is very firm on the open-hearth grades of material. No mill buying is reported, but prices are sustained by the fact that dealers short are covering and offerings are light. It is doubtful if heavy melting steel now can be had at less than $19, and railroad offerings of this grade are expected to bring $19.50, delivered Pittsburgh. Scrap rails are bringing $18.50 in this market. Turnings and borings have stiffened in price and offerings are scant even at the advance, since outside markets are netting shippers better returns. As high as $16, now is asked for machine shop turnings and clean cast iron borings, but no sales at higher than $15.50 are noted. Blast furnace turnings still drag. Approximately 34,000 net tons of scrap is listed in the August offering of the Pennsylvania Railroad and the Baltimore & Ohio list contains 18,810 gross tons.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton
Heavy melting steel	$18.50 to $19.00
No. 1 cast, cupola size	17.50 to 18.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md., Huntington, W. Va., and Franklin, Pa.	19.00 to 20.00
Compressed sheet steel	17.00 to 17.50
Bundled sheets, sides and ends	16.00 to 16.50
Railroad knuckles and couplers	20.50 to 21.00
Railroad coil and leaf springs	20.50 to 21.00
Low phosphorus blooms and billet ends	22.00 to 22.50
Low phosphorus plate and other material	21.00 to 21.50
Railroad malleable	18.00 to 18.50
Steel car axles	20.50 to 21.00
Cast iron wheels	17.00 to 17.50
Rolled steel wheels	20.50 to 21.00
Machine shop turnings	15.00 to 15.50
Short shoveling turnings	15.00 to 15.50
Sheet bar crops	19.00 to 20.00
Heavy steel axle turnings	16.50 to 17.00
Short mixed borings and turnings	14.00 to 14.50
Heavy breakable cast	16.00 to 16.50
Stove plate	14.00 to 14.50
Cast iron borings	15.00 to 15.50
No. 1 railroad wrought	15.00 to 15.50
No. 2 railroad wrought	18.50 to 19.00

Ford Gets the 200 Shipping Board Vessels

WASHINGTON, Aug. 4.—Henry Ford's cash bid of $1,706,000 for the 200 steel vessels to be scrapped by the Emergency Fleet Corporation has been accepted formally by the Shipping Board after having been approved by President Palmer of the Fleet Corporation some days ago. Included in the sale of these vessels for scrapping are all engines, boilers and auxiliaries. The next highest bid was $1,370,000 by the Boston Iron & Metal Co., Baltimore.

Advertisements first called for bids on June 30, and about 20 prospective buyers submitted offers. None of these bids however satisfied the board, which declined to approve the Boston Iron & Metal Co. bid recommended by President Palmer. A few days later the Ford bid was submitted, and the question then was raised within the board as to whether the board had authority under the Merchant Marine Act to offer the vessels for sale on condition they be scrapped. The office of the United States Attorney General ruled that the sale could proceed. In a statement today Chairman O'Connor of the board states that the campaign will be continued to seek American buyers of ships to be used in the merchant trade.

Chicago

Buying Bulks Largest in Weeks, with Railroads Conspicuous

CHICAGO, Aug. 4.—The week has been an active one in railroad buying both from the standpoint of car and rail orders. The Central of Georgia has placed 1000 box cars with the Tennessee Coal, Iron & Railroad Co. and the Missouri-Kansas-Texas has ordered 1000 from the Mount Vernon Car Mfg. Co. The Texas & Pacific has placed 750 gondola cars with the Western Steel Car & Foundry Co. Fully 28,000 tons of steel will be required for this equipment. The Great Northern has ordered 10,000 tons of rails together with angle bars from the Bethlehem Steel Co., and is expected to purchase 15,000 to 20,000 tons additional. A generous rail buying movement seems assured, but the extent of car purchases during coming months is still very uncertain. The orders placed this week disposed of all important pending inquiries and no new business is yet in sight.

Whatever may prove to be the attitude of the carriers toward equipment purchases, steel bookings from other sources have shown such improvement that producers believe that the turn in the market has come. For the first time since the reaction in steel buying set in, the specifications of a leading local producer of heavier rolled steel products exceeded shipments. Moreover, the new business taken during the week was the largest booked in any seven-day period save one this year. Sales totals for the month of July are also a source of encouragement, new tonnage entered by local mills rolling heavier finished products being fully 50 per cent ahead of that for June and 100 per cent over July last year. While it cannot be said that buyers generally have abandoned their conservative policy of buying, it is regarded as significant that certain important jobbers have placed liberal tonnages for third quarter. Past experience indicates that purchases by warehouse interests frequently precede a change in the market trend.

Ingot output remains at 75 per cent of capacity and 23 steel works blast furnaces continue in operation out of 35 in this district. A Wisconsin steel works stack may go out this week for relining, but otherwise signs point to expansion rather than contraction of blast furnace operations. A second Youngstown stack may be blown in at Indiana Harbor sometime next month.

Ferroalloys.—A local buyer has purchased 1000 tons of ferromanganese. The British ferromanganese association recently met without deciding on any advance in price. This commodity is apparently firmly held at $115, seaboard. A number of spot orders for small lots of ferromanganese have been placed. Spiegeleisen is quiet with prices stronger. An Eastern producer is quoting $33 for car lots, the equivalent of $41.58 delivered.

We quote 80 per cent ferromanganese, $122.56, delivered; 50 per cent ferrosilicon for 1925 delivery, $85, delivered; spiegeleisen, 18 to 22 per cent, $38.58 to $40.04, delivered.

Pig Iron.—While no buying movement is under way, a considerable amount of business for prompt shipment is being booked, together with occasional tonnages for fourth quarter. There seems to be little remaining doubt that the volume of business in the last half of the year will be large, but the course of prices is still uncertain. Few observers look for a decline in the market but opinion is divided as to whether and when prices will advance. Shipments from furnaces in July were 10 to 15 per cent heavier than those for June and rank among the best for any month in the history of this market except for the war period. The Thomas furnace, Milwaukee, is now in full production, but otherwise the merchant blast furnace situation is unchanged. Among current inquiries may be mentioned 1000 tons of foundry for a local melter and 500 tons for an Indiana user, both for delivery over the remainder of the year. Silvery is more active and is gaining in strength. Charcoal is firm and sales of 100 to 200 tons have been negotiated during the week. A local buyer has closed for 300 tons of 14 to 16 per cent ferrosilicon for Ohio delivery. This commodity has also grown firmer. An Indiana melter has purchased 150 tons of low phosphorus iron. The ruling quotation on this product is $31.20 delivered Chicago. Alabama iron is quoted at $18.50, base Birmingham, and Tennessee foundry at $17.50, base Birmingham, for all rail delivery.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$20.50
Northern No. 1 foundry, sil. 2.25 to 2.75	21.00
Malleable, not over 2.25 sil.	20.50
High phosphorus	20.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	23.51
Southern No. 2 (barge and rail)	22.68
Low phos., sil. 1 to 2 per cent, copper free	31.20
Silvery, sil. 8 per cent	$29.79 to 30.79
Electric ferrosilicon, 14 to 16 per cent	44.50 to 44.79

Plates.—The Missouri-Kansas-Texas has placed 1000 box cars with the Mount Vernon Car Mfg. Co., and the Texas & Pacific has ordered 750 gondola cars from the Western Steel Car & Foundry Co. The steel for the gondola cars, amounting to 7500 tons, has been placed with a local mill and it is expected that the material for the box cars, 10,000 tons, will also be ordered from Chicago producers. A railroad has ordered 10,000 tons of plates, shapes and bars from a Chicago mill for car repairs in its own shops. The Humble Oil Co. is in the market for 15 oil storage tanks for Baytown, Tex., requiring 4500 tons of plates. A tank inquiry from Vancouver, B. C., calls for 3000 tons of plates. Plate prices have gained in strength.

The mill quotation is 2.10c., Chicago. Jobbers quote 3.10c. for plate out of stock.

Bars.—The past week was one of the largest this year in bookings of soft steel bars. Business is coming from a wide variety of sources and both manufacturing users and jobbers are gradually departing from the hand-to-mouth policy of buying, which has been the rule for several months. In fact, a number of substantial tonnages were placed by jobbers. Prices are firm at 2.10c., Chicago. Demand for bar iron shows less improvement, with prices unchanged. Bookings in rail steel bars are sufficient to sustain satisfactory mill operations, but are not heavy enough to warrant an advance in prices.

Mill prices are: Mild steel bars, 2.10c.; common bar iron, 1.90c. to 2c., Chicago; rail steel, 2c., Chicago and 2c., mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c.

Structural Material.—The Great Northern Railway has placed 4020 tons for an ore dock extension at Allouez Bay, Wis., with the American Bridge Co. This is the largest letting of the week. Among fresh projects are a plant for the Mack Trucks Corporation, Chicago, 675 tons, and a structure at Johnston, Cal., for the Great West Sugar Co., requiring 770 tons. Plain material is firmer at 2.10c., Chicago.

The mill quotation on plain material is 2.10c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Rails and Track Supplies.—The Louisville, Henderson & St. Louis has ordered 3000 tons of rails from the Gary mill. A Western road with headquarters in this city has released 5000 tons against its rail contract for prompt shipment. A large rail buying movement is anticipated and will probably get under way earlier than usual this year. The week brought orders for 7000 rolled steel wheels to a local producer.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 1.80c. to 1.90c., f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c base, and track bolts, 4.55c. base.

Cast Iron Pipe.—James B. Clow & Sons have booked 350 tons for Lansing, Mich., and 85 tons for Glenview, Ill. The award of 3000 tons by Villa Park, Ill., has been held up by an injunction. Franklin Park, Ill., took general contract bids last night on 691 tons of 6 in., 135 tons of 8 in., and 28 tons of 4 in., Class B. North Milwaukee, Wis., takes figures today on 100 tons of 6 and 8 in., Class C. Prices range from $41 to $42, base Birmingham, for 6 in. and larger. Pipe shops are committed well into September.

We quote per net ton f.o.b. Chicago, as follows: Water pipe, 4-in., $53.20 to $54.20; 6-in. and over, $49.20 to $50.20; Class A and gas pipe, $4 extra.

Bolts, Nuts and Rivets.—Specifications for bolts and nuts are coming in at an unchanged rate and bolt plants continue to operate at 65 to 70 per cent of capacity. Discounts are steady. Both large and small rivets remain weak at unchanged price levels.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to ⅝ x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to ⅝ x 4 in., 50 off; larger sizes, 50 off; hot-pressed nuts, squares, tapped or blanked, $3.50 off; hot-pressed nuts, hexagons, tapped or blank, $4 off; coach or lag screws, 60 per cent off.

Sheets.—Demand is still hesitant, but the volume of business has increased sufficiently to warrant an increase in mill operations. The local independent has added three hot mills, making a total of 20 active hot mills out of 28. Prices are slowly gathering strength and the advance in spelter is expected to be reflected in a commensurate increase in the price of galvanized sheets.

Chicago delivered prices from mill 3.35c. to 3.40c. for No. 28 black, 2.45c. to 2.50c. for No. 10 blue annealed and 4.35c to 4.45c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4c. base for black, and 5c. base for galvanized.

Wire Products.—Scattered contracting by jobbers, particularly a number located in the South, is interpreted as pointing the way to a general pre-autumn buying movement. Crop prospects are so good that a heavy fall trade in wire products is regarded as a certainty and there is already some talk of possible price advances. Prices are hardly likely to change, however, until business gathers volume. Wire mills booked more business in July than in the same month last year and are this week increasing operations 5 to 10 per cent, bringing the general average up to 60 to 65 per cent. For mill prices see page 384.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, $3.05 per 100 lb.; common wire nails, $3.15 per keg; cement coated nails, $2.25.

Reinforcing Bars.—The reinforcing field remains one of the most active departments of the steel market. Although actual lettings during the week were limited in number, a considerable amount of prospective tonnage has appeared. The general contract for Section 11 of the South Water Street double-decking work, Chicago, 1300 tons, has been awarded to the Midcontinent Construction Co. Billet steel reinforcing bars remain steady at 2.60c., Chicago warehouse. Lettings include:

Holy Family Academy, Chicago, 170 tons, to Barton Spiderweb System Co.

Jonathan Scammon public school, Chicago, 145 tons of rail steel, to Calumet Steel Co.

Florence Nightingale public school, Chicago, 175 tons of rail steel, to Calumet Steel Co.

State Bank & Trust Co. building, Evanston, Ill., 250 tons, awarded to Truscon Steel Co., instead of another fabricator as previously reported.

Independent Order of Foresters building, Chicago, 120 tons of rail steel, to Inland Steel Co.

Horace Mann public school, Chicago, 125 tons of rail steel, to Olney J. Dean & Co.

Loyola University laboratory, Chicago, 100 tons of rail steel, to Calumet Steel Co.

Apartment hotel, 3616 Pinegrove Avenue, Chicago, 110 tons of rail steel, to Calumet Steel Co.

Pending work includes:

City of Chicago, South Water Street double-decking, Section 11, 1300 tons, general contract awarded to midcontinent Construction Co.

Wendell Phillips public school, Minneapolis, 330 tons.

Maria Sanford public school, Minneapolis, 330 tons.

Eastgate Hotel, Chicago, 400 tons, Oman & Lilinthal, architects.

Fifteen-story Hotel for Plotke & Crosby, Chicago, 500 tons.

Burke Manor apartments, Chicago, 125 tons, Oldefest & Williams, architects.

Fort Armstrong Hotel, Rock Island, Ill., 150 tons.

High school, Kankakee, Ill., 200 tons, general contract awarded to John Moroff, Kankakee.

Lake Shore Athletic Club, Chicago, 250 tons, revived.

Administration building, Chicago produce market, 400 tons, general contract awarded to McLennan Construction Co.

Billets.—The week brought out heavy buying of billets. The base quotation on rerolling billets is $35, Chicago.

Old Material.—The most striking feature of the market is dealer speculation. Everyone in possession of scrap is holding it in anticipation of further advances. At the same time brokers are bidding up prices sharply on current railroad lists. Dealers are generally asking a minimum of $17 per gross ton delivered for heavy melting steel and while two steel mills bought at $16.25 and $16.50, respectively, during the week, they were only able to place small tonnages at those prices. The confidence of the trade is indicated by the fact that $17.35 per gross ton delivered was paid by a dealer for railroad materials on a list recently closed. Outside of the mills, consumers are buying with greater freedom. Some substantial orders for low phosphorus material were placed at advanced prices and foundry grades are also moving in greater volume. Railroad offerings are heavy, including the Pennsylvania, 35,000 tons; the Baltimore & Ohio, 19,000 tons; the Pere Marquette, 2600 tons; the New York Central, 11,000 tons; the Wabash, 2600 tons, and the Michigan Central, a blank list.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

	Per Gross Ton	
Iron rails	$17.50 to	$18.00
Cast iron car wheels	17.50 to	18.00
Relaying rails, 56 and 60 lb.	25.00 to	26.00
Relaying rails, 65 lb. and heavier	26.00 to	31.00
Forged steel car wheels	19.50 to	20.00
Railroad tires, charging box size	19.50 to	20.00
Railroad leaf springs, cut apart	19.50 to	20.00
Rails for rolling	18.50 to	19.00
Steel rails, less than 3 ft.	19.50 to	20.00
Heavy melting steel	16.25 to	16.75
Frogs, switches and guards, cut apart	17.00 to	17.50
Shoveling steel	15.75 to	16.25
Drop forge flashings	11.00 to	11.50
Hydraulic compressed sheets	13.50 to	14.00
Axle turnings	13.75 to	14.25
Steel angle bars	19.00 to	19.50
Steel knuckles and couplers	19.00 to	19.50
Coil springs	20.50 to	21.00
Low phos. punchings	18.50 to	19.00
Machine shop turnings	9.75 to	10.25
Cast borings	12.00 to	12.50
Short shoveling turnings	11.75 to	12.25
Railroad malleable	18.50 to	19.00
Agricultural malleable	18.00 to	18.50
	Per Net Ton	
Iron angle and splice bars	16.75 to	17.25
Iron arch bars and transoms	20.50 to	21.00
Iron car axles	26.50 to	27.00
Steel car axles	17.00 to	17.50
No. 1 busheling	13.00 to	13.50
No. 2 busheling	8.50 to	9.00
Pipes and flues	11.00 to	12.00
No. 1 railroad wrought	15.00 to	15.50
No. 2 railroad wrought	14.50 to	15.00
No. 1 machinery cast	17.50 to	18.00
No. 1 railroad cast	17.00 to	17.50
No. 1 agricultural cast	16.50 to	17.00
Locomotive tires, smooth	16.00 to	16.50
Stove plate	14.50 to	15.00
Grate bars	14.50 to	15.00
Brake shoes	14.50 to	15.00

New York

Buying of Low Phosphorus Pig Iron—Foreign Pipe Bids Thrown Out

NEW YORK, Aug. 4.—The pig iron market has been rather more active the past week, but so far as foundry iron is concerned the transactions consisted mainly of small lot orders. Local offices which sell in the New England district as well as in the metropolitan area have had more inquiry from New England than from nearby territory. In respect to tonnage, low phosphorus iron has shown greatest activity. A New Jersey buyer closed for 2000 tons, and for delivery in New England foreign hematite has sold to the extent of about 5000 tons. The Steel Corporation has bought 5000 tons of New York State low phosphorus for delivery at Worcester, Mass. The Government has taken a number of lots of foundry iron for Navy yards. In the case of the yard at Portsmouth, Va., the 500 tons bought went to an Alabama furnace. A New Jersey foundry is in the market for 900 tons of various grades, mainly foundry iron, with small amounts of charcoal iron and spiegeleisen, deliveries to be made in August, September and October. There is an effort on the part of eastern Pennsylvania producers to get better prices and in one case $21 at furnace is asked for No. 2 plain. Another interest, which has made closely competitive prices of late, is now said to be asking $21.50, base, eastern Pennsylvania furnace. Buffalo prices are unchanged and it is reiterated that $19 is the asking price of more sellers there. However, this appears to be the basis on small lots only. The total pig iron sales of the week in the New York district are estimated at 6000 to 7000 tons.

We quote delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	$22.52 to $22.77
East. Pa. No. IX fdy., sil. 2.75 to 3.25	23.02 to 23.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.52 to 23.02
Buffalo, sil. 1.75 to 2.25	23.16 to 23.91
No. 2 Virginia, sil. 1.75 to 2.25	28.44

Ferroalloys.—Sales of at least 1500 tons of ferromanganese are reported, all in fairly small lots except one of 1000 tons. The full price of $115, seaboard, is reported to have ruled. Pending inquiry continues fairly large with buyers still holding off, evidently with the expectation of lower prices. Sellers, however, hold out practically no hope of any downward change, though one is reported to have guaranteed buyers against a reduction. The spiegeleisen market is also only moderately active with prices unchanged.

Cast Iron Pipe.—Quotations on pressure pipe continue unchanged with the market still firm, except for occasional weakness in the face of foreign competition. Danbury, Conn., which opened bids recently on 2200 tons of 30-in. water pipe, rejected the bid of the Pont-a-Mousson works, France, which was low, and awarded the contract to the United States Cast Iron Pipe & Foundry Co. New York has rejected all foreign bids on the 9000 tons of pipe and fittings and will award to the next lowest American bid. Details are given elsewhere in this issue. The Department of Purchase of the City of New York will advertise in a few days for bids on an additional 9000 to 10,000 tons of pipe and fittings, foreign bids being accepted as formerly. The soil pipe market continues unchanged with a fair tonnage being placed, in most cases at concessions from the prices generally quoted.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $50.60 to $51.60; 4-in. and 5-in., $55.60 to $56.60; 3-in., $65.60 to $66.60, with $5 additional for Class A and gas pipe. Discounts of both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 45 to 50 per cent off list; heavy, 55 to 60 per cent off list.

Finished Iron and Steel.—While there is growing confidence in the steel trade, the week's developments have not gone far to bear out the predictions of some that August would bring a decided upturn in steel business. However, only three business days have elapsed at this writing and one of these was Saturday, so it is a little too soon to draw any conclusions. In these three days business has not been disappointing as compared with last month; one company's mill bookings are 20 per cent larger. Car buying by the railroads has been larger than in any week this summer, but there are no pending inquiries of any size, and further developments as to railroad requirements of new equipment are uncertain. Without any important railroad buying of cars and locomotives, estimates of steel to be required this fall must undergo important downward revision. Structural steel lettings have continued in fairly good volume and some of the fabricators in the metropolitan district have enough work to keep them busy for months. Under such conditions it is but natural that prices of fabricated steel should advance, as they already have done. There is probably a little less shading of prices on plain material. Some of the larger producers are holding at 1.90c., Pittsburgh, but there are occasional quotations by other mills equivalent to 1.85c., Pittsburgh, and even 1.80c. has been done. Plates remain at 1.80c. to 1.90c., Pittsburgh; the latter price prevails only on small lots. Sheet manufacturers have announced an advance on galvanized to 4.30c. and on black to 3.20c., Pittsburgh, but these prices are not yet wholly effective. Sales of galvanized have been made at 4.20c. and of black at 3.10c. within the week. Blue annealed sheets are being sold at 2.25c. and 2.30c., Pittsburgh. There is sharp competition on bar iron in the New York district and sales have been made by Eastern mills at delivered prices equivalent to 1.80c., Pittsburgh.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c.; plates, 2.14c. to 2.24c.; structural shapes, 2.14c. to 2.24c.

Warehouse Business.—Brisk business continues in structural steel and reinforcing bars are in good demand, but other lines are slower. The price situation is unchanged, sheets being as uncertain as to prices. Little interest is shown in welded pipe, although prices hold fairly firm. Buying is more generally in small lots. We quote boiler tubes per 100 ft. as follows:

Lapwelded steel tubes, 2-in., $17.33; seamless steel, 2-in., $20.24; charcoal iron, 2-in., $25; 4-in., $67.

Old Material.—Brokers with contracts to fill having apparently "bought" themselves into a better position to face a rising market, the upward movement of the past fortnight has settled into a condition of firmness. Strength is doubtless added by the firm situation in western Pennsylvania, where $19 per ton delivered is being paid for No. 1 heavy melting steel by consumers. Eastern Pennsylvania prices continue unchanged, brokers paying $16 to $16.50 and as high as $16.75 per ton delivered for heavy melting steel railroad grade. Machine shop turnings are going forward to Phoenixville and Harrisburg, Pa., at $13.50 per ton delivered, and borings and turnings are quiet at $12 to $12.50 per ton, delivered. Heavy breakable cast and No. 1 machinery cast are strong. Specification pipe, after having reached a high point of $17 per ton, paid by a consumer in eastern Pennsylvania, has settled back to $16.50 per ton, for which brokers offer $16 per ton delivered.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	$11.50 to $11.75
Heavy melting steel (railroad or equivalent)	13.25 to 13.50
Rails for rolling	13.25 to 13.75
Relaying rails, nominal	23.00 to 24.00
Steel car axles	20.50 to 21.00
Iron car axles	23.00 to 24.00
No. 1 railroad wrought	14.00 to 14.50
Forge fire	10.25 to 10.75
No. 1 yard wrought, long	13.00 to 13.50
Cast borings (steel mill)	9.25 to 9.75
Cast borings (chemical)	12.00 to 12.50
Machine shop turnings	9.25 to 10.00
Mixed borings and turnings	9.00 to 9.50
Iron and steel pipe (1 in. diam., not under 2 ft. long)	12.00 to 12.50
Stove plate	10.50 to 12.00
Locomotive grate bars	11.00 to 11.50
Malleable cast (railroad)	15.00 to 15.50
Cast iron car wheels	13.50 to 14.00
No. 1 heavy breakable cast	13.00 to 13.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$17.00 to $17.50
No. 1 heavy cast (columns, building material, etc.), cupola size	15.50 to 16.00
No. 2 cast (radiators, cast boilers, etc.)	14.50 to 15.00

San Francisco

Buying Interest Fails to Strengthen—Prices Remain Unchanged

SAN FRANCISCO, Aug. 1 (*By Air Mail*).—Business during the past week was confined to routine developments. Inquiries were small, few lettings were above the average, and prices continued on the same basis they have been for the past few weeks. Some of the Eastern mills quote shapes at 2.45c., c.i.f. Coast ports, and plates at 2.40c., but the absence of large bookings, and the apparent inclination of other sellers to keep quotations at 2.40c. for shapes and 2.35c. for plates, in round tonnages, have prevented the crystallization of what some describe as "a slightly firmer price tone." Despite the fact that this is the middle of the vacation period a fairly good volume of routine business is being booked. July sales were slightly better, on the whole, than a year ago, and most of the Eastern mill representatives, as well as local interests, express confidence in the probability of a stronger buying movement after Labor Day.

Included among the larger miscellaneous bookings of the week were the following: The Southern Pacific Co. placed about 165 tons of rivets, and the Southern Pacific Equipment Co. placed about 70 tons of carriage and machine bolts with unnamed mills. The Key System Transit Co. placed about 2640 tons of 122-lb. girder rails and about 200 tons of 135-lb. guard rails with the United States Steel Products Co., and about 500 tons of 122-lb. girder rails with Bethlehem Steel Co. About 900 gross tons of 65-lb. relaying rails have been placed by the directors of the South San Joaquin Irrigation District, Manteca, Cal. The Southern Pacific Co. will close bids Aug. 3 for about 93 tons of rivets.

Pig Iron.—No large tonnages are known to have been closed during the week. Business is very quiet and prices are substantially unchanged, although rumors of slightly lower quotations in German foundry have been heard, the price named being $25.75 duty paid, f.o.b. cars San Francisco, which is 75c. below the figure generally quoted.

*Utah basic	$27.00 to $28.00
*Utah foundry, sil. 1.75 to 2.25	27.00 to 28.00
**English foundry	27.00 to 28.00
**Belgian foundry	26.00
**Dutch foundry	25.00
**Indian foundry	26.50
**German foundry	26.50
*Birmingham, Ala., foundry, sil. 2.75 to 3.25	29.00 to 30.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Bookings during the week amounted to about 2635 tons. Inquiries were small, only one calling for 300 tons. Quotations continue at 2.40c. to 2.45c., c.i.f. Coast ports. The 2.40c. quotation for round tonnages was heard more frequently during the past week than in the preceding fortnight, but several of the Eastern mills are still maintaining a 2.45c. price. After several weeks' delay the 1100 tons required for the Army and Navy Y. M. C. A., San Francisco, has been awarded to Pacific Rolling Mill Co., Inc. Central Iron Works took 600 tons for the Oakland-Alameda Estuary tube. There is still about 500 tons of rods to be placed. Morton Salt Works, Newark, Cal., awarded 500 tons to McClintic-Marshall Co. The Union Bridge Co., general contractor for the Olequa Toll Bridge, Olequa, Wash., will require 300 tons shortly.

Plates.—Lettings totaled 2100 tons, and fresh inquiries call for about 750 tons. For desirable tonnages 2.35c., c.i.f. Coast ports, is still being named. Smaller tonnages are being quoted at 2.40c., although some of the Eastern mills continue to quote 2.40c. as minimum. Bids will be called Aug. 18 for the 1500 tons required for the McKenzie River water supply system, Eugene, Ore. The calling of bids by the Union Oil Co., Los Angeles, for 6 or 12 80,000-bbl. tanks requiring 1800 to 3600 tons has been postponed for about two weeks. Los Angeles Mfg. Co. is low bidder for 200 tons of No. 10 gage blue annealed sheets for the Contract Water Co., Azusa, Cal. Lacy Mfg. Co., Los Angeles, has placed 210 tons with an unnamed Eastern independent mill. The Southern Counties Gas Co., Los Angeles, has placed 1890 tons for compressor tanks at Santa Ana and Ontario, Cal.

Bars.—Bids have closed on several jobs calling for reinforcing bars, but few large awards were made during the week. A large number of small lettings are being made regularly. Demand is somewhat better for soft steel bars, local mills quoting 2.45c., 100-ton lots, f.o.b. San Francisco, and 2.50c. per 100 lb. Reinforcing bars out of stock are: 3.25c., base, 250 tons; 3.35c., base, careload; 3.80c., base, l.c.l. The California Highway Commission awarded 200 tons to two unnamed San Francisco jobbers for two bridges, one over Charley Creek, Shasta County, and the other over Coachella Storm Water Channel, Riverside County. An unnamed jobber took 100 tons for the Sunnyvale High School, Sunnyvale, Cal., and bids have closed for the Nevada County Irrigation District, Grass Valley, Cal., which requires 307 tons.

Sheets.—Little active buying is being done, and rumors of price shading continue to be heard, especially in galvanized sheets, which are being quoted at 4.20c. Pittsburgh base. Blue annealed sheets are 2.30c. and black sheets 3.15c., Pittsburgh. An inquiry is in the market for 200 to 300 tons of blue annealed sheets for the La Puente Valley Water District, Los Angeles County. Bids close Aug. 11.

Cast Iron Pipe.—Interest is slack, although a number of fair size jobs are pending. Prices are unchanged, $52 to $53 base, water shipment, San Francisco district. McWane Cast Iron Pipe Co. has been awarded 686 tons of 4- and 6-in. B by Burbank, Cal.

Steel Pipe.—The Republic Supply Co. took 165 tons of 4, 6 and 8-in. O. D. plain and line pipe for the La Canada Irrigation District, La Canada, Cal.

Warehouse Business.—Business during July was somewhat sluggish, and jobbers look for an improvement during the present month. Orders are for the most part fairly numerous, but quantities called for are small. Prices are unchanged.

Merchant bars, $3.30 base per 100 lb.; merchant bars, ¾ in. and under, rounds, squares and flats, $3.80 base, per 100 lb.; soft steel bands, $4.15 base, per 100 lb.; angles, ⅞ in. and larger x 1½ in. to 2¾ in., inc., $3.30 base, per 100 lb.; channels and tees, ¾ in. to 2¾ in., inc., $3.90 base, per 100 lb.; angles, beams and channels, 3 in. and larger, $3.30 base, per 100 lb.; tees, 3 in. and larger, $3.30 base, per 100 lb.; universal mill plates, ¼ in. and heavier, stock lengths, $3.30 base, per 100 lb.; spring steel, ¼ in. and thicker, $6.30 case, per 100 lb.; wire nails, $3.50 base, per 100 lb.; cement coated nails, $3 base, per 100 lb.; No. 10 blue annealed sheets, $3.70 per 100 lb.; No. 28 galvanized sheets, $5.75 per 100 lb.; No. 28 black sheets, $4.65 per 100 lb.

Coke.—Local importers expect shipments from England during the month. Some concern has been expressed about the possibility of a coal strike in England shutting off the supply, but the yards of local sellers are fairly well stocked at present, and the current demand is not strong. Prices are unchanged.

English beehive, $14.50 to $17 at incoming dock, and English by-product, $12.50 to $14; German by-product, $14 to $14.50; Birmingham, Ala., by-product, $19 to $20 delivered; Wise County, Va., beehive, $22 delivered.

Old Material.—Buying is confined to small lots, and little new interest has developed recently. Prices continue weak, but unchanged, primarily because there has been no volume of business.

Prices for scrap delivered to consumer's yards are as follows.

Per Gross Ton	
No. 1 heavy melting steel	$10.50 to $11.00
Scrap rails, miscellaneous	10.50 to 11.00
Rolled steel wheels	10.50 to 11.00
Couplers and knuckles	10.50 to 11.00
Mixed borings and turnings	6.00 to 6.50
Country mixed scrap	8.00 to 8.50
No. 1 cast scrap	22.00 to 24.00

Cincinnati

Sustained Improvement in Steel—Inquiry for 1926 Pig Iron

CINCINNATI, Aug. 4.—Pig iron buyers have displayed little interest during the past week, even though there is a definite trend toward slightly higher quotations. Sales in the past week have totaled approximately 5600 tons, of which the major portion is for shipment during the third quarter. Furnaces in the Ironton district have established a minimum price of $19.50, Ironton, on foundry iron for immediate delivery and at least one furnace is quoting $20, Ironton, on fourth quarter business. Most consumers in this territory have not yet covered for their fourth quarter requirements and many of them are not expected to come into the market for 30 days. Northern foundry sales have included two lots of 500 tons each, while a central Ohio melter has placed 1000 tons with a Lake furnace. A Springfield, Ohio, consumer has closed for 500 tons of malleable. Silvery iron sales have increased slightly, while prices are being maintained on a firm level. The Packard Motor Car Co., Detroit, is reported to have purchased 300 tons of 6 to 7 per cent silvery. An inconsiderable quantity of Alabama iron has moved into this territory. One dealer has sold 300 tons to an eastern Ohio melter. Alabama furnaces are quoting $18.50 to $19, Birmingham. The Rock Run charcoal iron furnace, Rock Run, Ala., went into blast on July 27. Small sales of Tennessee iron have been reported at $17.50, Birmingham. An inquiry from a southern Ohio melter for 3300 tons of Northern foundry iron for shipment during the first half of 1926 has elicited much interest. Other foundry iron inquiries include 1000 tons for an Ohio consumer, 750 tons for a western Ohio melter, 300 to 500 tons for a central Ohio melter and the same tonnage for shipment to Michigan. The American Rolling Mill Co. is blowing in its second furnace at Columbus, Ohio, on August 4. A local dealer has sold 100 tons of ferromanganese.

Based on freight rates of $4.05 from Birmingham and $2.27 from Ironton we quote f.o.b. Cincinnati:

Alabama, fdy., sil. 1.75 to 2.25 (base)	$22.55 to $23.05
Alabama fdy., sil. 2.25 to 2.75	23.05 to 23.55
Tennessee fdy., sil. 1.75 to 2.25	21.55
Southern Ohio silvery, 8 per cent	28.27
Southern Ohio fdy., sil. 1.75 to 2.25	21.77
Southern Ohio, malleable	21.27 to 21.77

Bars, Shapes and Plates.—Several sellers state that their volume of business has increased slightly. Orders locally remain retricted to shipments within the next 30 to 60 days. Buyers are holding rigidly to the policy of purchasing only for their immediate needs. Demand for bars is improved, but is principally confined to carload lots. The Peoria & Eastern Railway Co., Cincinnati, is asking for bids on 6000 90-lb. angle bars for shipment within 30 days. Bids close on Aug. 10. The price of bars is firm at 2c., Pittsburgh. Little inquiry is out for shapes which are quoted at 2c., Pittsburgh. Buying of plates, which have moved in fair volume for several weeks, has temporarily subsided. Prices range from 1.85c. to 1.90c., Pittsburgh. Quietness has settled upon the structural steel market after last week's flurry of activity. Announcement concerning the awarding of the general contract for the new building of the Cincinnati Enquirer is still awaited. Bids have been submitted on the municipal building at Ashland, Ky., which will take 250 tons. Fabricators have been figuring on considerable work, but exceptionally low quotations are the prime factor in the majority of awards in this vicinity.

Sheets.—July sales called for substantial tonnage in this territory and an increase over June. The outlook is encouraging with indications of more liberal buying by consumers. It remains that many buyers doubt the stability of the market, though this attitude is gradually changing to one of assurance that quotations will go no lower and that now is a good time to make purchases. Sellers are unwilling to accept orders for shipment beyond the third quarter, in the belief of a higher price trend. First signs of a determination to establish better prices are seen in the announcement of the Newport Rolling Mill Co. that galvanized sheets will be placed at once on a 4.30c. to 4.35c., Pittsburgh basis, for carload shipments and that the company will not book any contract beyond September delivery. The advance in the price of spelter is partly responsible for the new schedule. Galvanized sheets, however, can be secured at the present moment at 4.20c., Pittsburgh. Sales of black sheets have been fair and the quotation remains at 3.15c., Pittsburgh. Blue annealed has commanded a moderately active market and is quoted at 2.30c., Pittsburgh. Mills in this territory are operating about 70 per cent of capacity.

Reinforcing Bars.—M. E. White & Co., Chicago, has been awarded the general contract for the municipal reservoir at Dayton, Ohio, and will buy approximately 200 tons of bars. Lettings have been limited to small tonnages and there is little indication of a pick-up in activities during the next few weeks. Prices, however, have not been affected. New billet bars are firm at 2c. to 2.10c., mill. The quotations on rail steel bars vary from 1.90c. to 1.95c., mill.

Wire Goods.—Sales have been moderate in volume, but the market is showing the effects of a mid-summer let down in buying, despite the fact that independent mills in the Portsmouth and Ironton district have made a concerted effort to secure sufficient tonnage to maintain their present schedule of mill operations. Jobbers are well taken care of for the present and it is unlikely that a general buying movement will develop within the next 30 to 40 days. Pittsburgh mills are asking 2.65c., Pittsburgh or Cleveland, for common wire nails, but independent sellers have dipped below that figure. In some cases they are going as low as 2.74c., delivered in Cincinnati. It is reported that business has been taken at this price, which is equivalent to 2.60c., Ironton, plus the barge rate, and then has been shipped by rail. Plain wire is selling at 2.50c., Pittsburgh or Cleveland, but here again mills in Ironton territory are offering lower quotations as an inducement to consumers.

Tin Plate.—Canners are expecting a big season for the packing of corn and tomatoes. The fruit crop is also encouraging. Can manufacturers are beginning to submit their tin plate specifications for the fourth quarter. Prices are holding fairly well at $5.50 per base box, Pittsburgh.

Warehouse Business.—July turned out to be one of the best months of the year for Cincinnati jobbers. One of the large concerns has booked more business in the period than during any previous month since October, 1923. The biggest improvement has been reflected in plates, bars and sheets. Demand for reinforcing bars has been more pronounced, while interest in pipe and tubular goods is lagging. Cold-rolled steel has displayed some measure of strength, sales during the past month having been better than in June. Local jobbers are still competing vigorously on nails. The pressure exerted by sellers has been the main factor in keeping prices weak. Quotations in general remain the same. Consumers are hesitant about placing orders covering future requirements. They are content to purchase only sufficient stock to fill their immediate needs.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4c. to 4.25c.; bands, 3.95c. shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds and hexagons, 3.85c.; squares, 4.35c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 9 annealed wire $3.00 per 100 lb.; common wire nails, $2.95 per keg base; cement coated nails, $2.40 per keg; chain, $7.55 per 100 lb. base; large round head rivets, $3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft. lap welded steel tubes, 2-in., $18; 4-in., $38; seamless, 2-in., $19; 4-in., $39.

Coke.—Consumers are showing moderate interest and have contracted for approximately 10,000 tons during the past week. Most of this consisted of by-product foundry coke for shipment in the next five months. Shipments of foundry grades during July were about on a par with those during June, but shipments of domestic coke averaged a gain of 15 per cent. A local dealer has booked an order for 2500 tons of furnace coke. By-product foundry coke is selling at $6.50, Connellsville, but this price is lowered to $7.50 per net ton at ovens in highly competitive territory.

Old Material.—Confidence in renewed mill and foundry buying in the early fall is manifested by scrap dealers, despite the fact that present purchases are negligible. Activities are confined almost exclusively to trading among dealers. The Big Four railroad is closing today on a list totaling 2000 tons. Prices are showing more strength with heavy melting steel bringing $14.50 to $15, an advance of 50c.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton

Heavy melting steel	$14.50 to $15.00
Scrap rails for melting	14.00 to 14.50
Short rails	18.00 to 18.50
Relaying rails	28.00 to 28.50
Rails for rolling	15.00 to 15.50
Old car wheels	14.00 to 14.50
No. 1 locomotive tires	17.00 to 17.50
Railroad malleable	16.00 to 16.50
Agricultural malleable	15.50 to 16.00
Loose sheet clippings	10.00 to 10.50
Champion bundled sheets	12.00 to 12.50

Per Net Ton

Cast iron borings	8.50 to 9.00
Machine shop turnings	7.50 to 8.00
No. 1 machine cast	18.00 to 18.50
No. 1 railroad cast	16.00 to 16.50
Iron axles	22.50 to 23.00
No. 1 railroad wrought	11.50 to 12.00
Pipes and flues	9.00 to 10.00
No. 1 busheling	10.50 to 11.00
Mixed busheling	9.50 to 10.00
Burnt cast	10.00 to 10.50
Stove plate	10.50 to 11.00
Brake shoes	10.50 to 11.00

Boston

Pig Iron Buying Continues Active with Sales Rising to 13,000 Tons

BOSTON, Aug. 4.—Pig iron buying was again of sizable proportions the past week, sales aggregating more than 13,000 tons, bringing the total for the past three weeks upward of 30,000 tons. Of recent sales, one of 5000 tons No. 2X and No. 1X to a Massachusetts textile machinery maker, another of 3000 tons No. 1X to a Springfield, Mass., foundry, and a third of 1500 tons No. 1X to a Providence, R. I., concern were the largest reported. Otherwise they ranged from 600 tons down to car lots with, as in the case of the larger ones, No. 1X iron the most active. The heavier demand for No. 1X, pig iron houses say, is for sweetening up mixtures with foreign iron. Buffalo district and western Pennsylvania furnaces have taken the bulk of business. Foreign iron, for the first time in weeks, is inactive. One Buffalo district furnace is holding to $19 furnace base, but others have eliminated differentials on iron running as high as silicon 2.75 to 3.25, selling at $19. Western Pennsylvania brings $1 a ton delivered more than Buffalo. New York State iron with a low freight into New England sells higher than Buffalo on a f.o.b. furnace base, yet less on a delivered base. A Massachusetts textile machinery maker is inquiring on an additional 1000 ton lot, and another machinery maker on 1000 to 2000 tons, 30 per cent No. 1X and 70 per cent No. 2X.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$23.65 to $24.15
East. Penn., sil. 2.25 to 2.75	24.15 to 24.65
Buffalo, sil. 1.75 to 2.25	23.91
Buffalo, sil. 2.25 to 2.75	23.91 to 24.41
Virginia, sil. 1.75 to 2.25	28.42 to 29.92
Virginia, sil. 2.25 to 2.75	28.92 to 30.42
Alabama, sil. 1.75 to 2.25	28.10 to 28.60
Alabama, sil. 2.25 to 2.75	28.60 to 29.11

Shapes and Plates.—Virtually all new fabricating prospects in the market today involve less than 500 tons of steel, with possibly 80 per cent to 85 per cent of the inquiries requiring less than 100 tons. Competition for business among the fabricators is increasing with the result that operating profits are smaller than they have been in years. The market for shapes appears firm at $2.36½ per 100 lb. delivered or 2c. a pound Pittsburgh base. Prices on plates, on the other hand, are unsettled. Most mills openly quote $2.21½ per 100 lb. delivered or 1.85c. a pound Pittsburgh base, but where a mill has an advantage in freight rates $2.21½ delivered is sometimes shaded.

Coke.—The New England Coal & Coke Co. and the Providence Gas Co. announce that the price of by-product foundry coke delivered within New England this month will be $11.50 a ton. The $11.50 price has been quoted by these ovens since April 1, and is $1 a ton below the high for the year. Shipments by these two companies hold up well on foundry and domestic fuel, making it necessary to operate ovens at capacity. A sizable percentage of the buying is for stocking purposes, in anticipation of labor troubles at the coal mines and higher fuel costs. Connellsville foundry coke, while not active in this territory, is more so than it has been in months. It sells on a delivered basis at about $1 a ton less than local fuel.

Old Material.—Anticipated activity in old material has not developed, the market remaining comparatively quiet. Sentimentally, prices are firmer, however, under the lead of heavy melting steel. A limited amount of heavy melting steel for Pennsylvania shipment is moving at $12.50 to $13 on cars, and for New England consumption at $12.25 to $12.50. Scrap rails are bringing as much, while pipe at $11 to $11.50 and occasionally $11.60, machine shop turnings at $8.50 to $9 and mixed borings and turnings at around $8 are moderately active. Early the past week chemical borings sold at around $11.50 on cars, but demand is now slack and buying orders for most other kinds of material are down to a minimum. Scattering sales of textile machinery cast at around $20.50 delivered and of No. 1 machinery cast at $19 are reported.

The following prices are for gross ton lots delivered consuming points:

Textile cast	$20.00 to $21.00
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	15.50 to 16.50
Stove plates	13.00 to 13.50
Railroad malleable	19.00 to 19.50

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$12.50 to $13.00
No. 1 railroad wrought	13.00 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1-in. in diam., over 2 ft. long)	11.00 to 11.50
Machine shop turnings	8.50 to 9.00
Cast iron borings, chemical	11.00 to 11.50
Cast iron borings, rolling mill	8.50 to 8.75
Blast furnace borings and turnings	7.50 to 8.00
Forged scrap	10.00 to 10.50
Bundled skeleton, long	9.50 to 10.00
Forged flashings	9.50 to 10.00
Bundled cotton ties, long	8.50 to 9.00
Bundled cotton ties, short	10.00 to 10.50
Shaftings	19.00 to 19.50
Street car axles	18.00 to 18.50
Rails for rerolling	12.50 to 13.00
Scrap rails	12.50 to 13.00

St. Louis

Pig Iron Quiet—Additional Price Advances in Scrap

ST. LOUIS, Aug. 4.—Rather typical summer conditions obtain in pig iron, buying by the industries being in limited volume. No revival in activity is looked for before the end of the vacation season. Withal the market is quite firm, and there has been a fair volume of tentative inquiries for the purpose of ascertaining prices. No Northern iron is offered below $19.50, whereas ten days ago sales were negotiated at $19, base. Some small lots of Southern iron sold at $19, Birmingham, but one Southern maker is still offering at $17.50. Sales heard of totaled under 5500 tons, and included 3000 tons of foundry to a local interest. The St. Louis Coke & Iron Co. disposed of 800 tons to an Illinois stove maker and 650 tons to similar melters in the district proper. An engine builder took 200 tons. Implement makers are busy.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City.

Northern fdy., sil. 1.75 to 2.25	$22.66 to $23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	22.66 to 23.16
Alabama fdy., sil. 1.75 to 2.25 (rail)	22.67 to 24.17
Tennessee fdy., sil. 1.75 to 2.25	22.67
Granite City iron, sil. 1.75 to 2.25	21.31 to 21.81

Finished Iron and Steel.—Sentiment among producers is more optimistic than heretofore, this attitude being based on an improvement in inquiries and prospects for early fall business. There is momentarily a dearth of actual lettings, however, though a number of jobs are pending. This city is in the midst of a building boom, but most of the work has been closed. There is further improvement in the demand for oil country goods, particularly from the Arkansas and Oklahoma fields. Railroad buying is quiet, and confined to immediate necessities. The inquiry by the Cotton belt for 12,000 to 15,000 tons of 90-lb. rails is being held in abeyance.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.50c.; galvanized sheets, No. 28, 5.50c.; black corrugated sheets, 4.65c.; galvanized, 5.65c.; cold-rolled rounds, shafting and screw stock, 3.70c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, ⅞ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, $3.50; hexagons, blank or tapped, $4 off list.

Coke.—The demand for foundry coke continues active, with somewhat free buying for future delivery. Some fair orders have been received from Western and Southwestern foundries, and there is evidence of stocking up for the first time in many weeks. Local by-product plants are operating at capacity and shipping slightly more than their current output. Shipments on industrial coke contracts continue on a large scale. The domestic demand is quiet, though a shade better than two weeks ago. Prices are unchanged, but with a firmer tendency on metallurgical varieties.

Old Material.—Additional price advances were recorded in scrap iron and steel lists by dealers, and the market has a very firm undertone. Purchasing by the local industries, however, continues at a low ebb, and business is confined to the middlemen. There has been a fair volume of scrap moved out of the district, principally malleable and cast grades, to Chicago and nearby Indiana points. At the moment the Chicago market is relatively stronger than at this center. Local dealers are adding to their yard stocks, and are steadily refusing prices offered by melters. Rails and some of the steel specialties are scarce and wanted, and there is a good demand for blast furnace material, but with buyers and sellers about $1 apart in their views. The following railroad lists were before the trade: Big Four, 2100 tons; Mobile & Ohio, 930 tons; Missouri Pacific, 3500 tons; Chicago, Milwaukee & St. Paul, 6100 tons; Pennsylvania, 33,000 tons, and Chicago & Alton, 1100 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton	
Iron rails	$14.00 to	$14.50
Rails for rolling	18.00 to	18.50
Steel rails less than 3 ft.	17.50 to	18.00
Relaying rails, 60 lb. and under	24.00 to	25.00
Relaying rails, 70 lb. and over	30.00 to	30.50
Cast iron car wheels	17.50 to	18.00
Heavy melting steel	14.75 to	15.25
Heavy shoveling steel	14.75 to	15.25
Frogs, switches and guards cut apart	16.25 to	16.75
Railroad springs	18.00 to	18.50
Heavy axles and tire turnings	11.50 to	12.00
No. 1 locomotive tires	17.00 to	17.50
Per Net Ton		
Steel angle bars	15.00 to	15.50
Steel car axles	17.50 to	18.00
Iron car axles	25.00 to	25.50
Wrought iron bars and transoms	18.75 to	19.25
No. 1 railroad wrought	13.25 to	13.75
No. 2 railroad wrought	13.25 to	13.75
Cast iron borings	10.00 to	10.50
No. 1 busheling	11.50 to	12.00
No. 1 railroad cast	15.50 to	16.00
No. 1 machinery cast	17.00 to	17.50
Railroad malleable	14.50 to	15.00
Machine shop turnings	7.25 to	7.75
Champion bundled sheets	8.50 to	9.00

Consolidation of the Weir Frog Co., Cincinnati, and the Kilby Frog & Switch Co., Birmingham, has been announced. W. W. Stringfellow, Anniston, Ala., president of the Kilby company, has sold his interests to the Weir company. E. M. Kilby, who has been vice-president and general manager, will be president and general manager of the Kilby works, which will be operated separately from the Cincinnati works.

Buffalo

Finished Steel and Old Material Markets Somewhat Firmer

BUFFALO, Aug. 4.—Inquiry for pig iron in the week has been light, the total being somewhere about 5000 tons. One lot is for 800 to 900 tons of foundry and another for 300 to 600 tons of Bessemer iron. In the main, furnaces are holding to $19 base, but one producer, who for weeks has been eager for business, will do lower than this. Considerable tonnage proportionate to the inquiry has been taken at $18.25. Eleven furnaces are in operation.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	$18.25 to $19.00
No. 2X foundry, sil. 2.25 to 2.75	18.50 to 19.50
No. 1 foundry, sil. 2.75 to 3.25	19.00 to 20.00
Malleable, sil. up to 2.25	19.00
Basic	18.50
Lake Superior charcoal	29.28

Finished Iron and Steel.—Bars and shapes are holding to the 2.265c. price, but galvanized sheets have gone up to 4.565c., Buffalo. The new sheet price was effective last Saturday. A St. Catharines, Ont., company, J. P. & R. B. Porter, is low bidder on the piers for the new Fort Erie and Buffalo bridge, which will require 8500 tons of structural steel. Ten miles of road work was let during the week, calling for a total of 300 tons of road mesh.

Warehouse prices are being quoted as follows: Steel bars, 3.25c.; steel shapes, 3.35c.; steel plates, 3.35c.; No. 10 blue annealed sheets, 3.80c.; No. 28 black sheets, 4.75c.; No. 28 galvanized, 5.45c.; cold rolled shapes, 4.40c.; cold rolled rounds, 3.95c.; wire nails, 4c.; black wire, 4.05c.

Old Material.—Mills are not very active in any purchasing, though dealers have become interested in the trend of the market outside, notably at Pittsburgh, where $19 has been paid for heavy melting steel and at Weirton and other points where $18.50 has been paid for the same commodity. No scrap has been taken out of Buffalo for these shipments, but quite a bit has gone from points East and it has helped to firm up the local market. Reports are current that a large local mill will be in the market presently, but so far as can be learned has made no definite purchase yet. Pittsburgh is paying $15 for machine shop turnings, local dealers hear, and $14 to $14.75, Cleveland, is being paid on machine shop turnings, shoveling turnings and mixed borings and turnings. Cast grades are not active. Railroad lists, just closed, are very much lighter. Production of scrap is much lighter, so many producers having operated lately at a reduced rate. A mill which has been doing repair work is expected to light two or three additional open-hearth furnaces this week.

We quote prices f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	$17.00 to $17.50
Low phosphorus	18.50 to 19.50
No. 1 railroad wrought	14.00 to 14.50
Car wheels	16.00 to 16.50
Machine shop turnings	11.00 to 11.50
Cast iron borings	11.00 to 11.50
No. 1 busheling	15.00 to 15.50
Stove plate	15.25
Grate bars	14.25 to 14.75
Bundled sheets	15.00 to 15.50
Hydraulic compressed	16.00 to 16.50
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	17.00 to 17.50
No. 1 cast scrap	16.50 to 17.00
Iron axles	26.00 to 27.00
Steel axles	17.00 to 17.50

Birmingham

Consumption of Pig Iron Exceeds Production—Cast Pipe Active

BIRMINGHAM, Aug. 4.—The Southern pig iron market is still a little slow. There is considerable iron moving and being melted, more than is being produced. Eleven blast furnaces are on basic iron and a like number on foundry. One furnace of each kind will be blown out for repairing shortly. Sales during the week were practically all of small tonnages and almost all of them for consumption in the home territory. Inquiries

are in on iron for the next 60 days and through fourth quarter. Quotations are firm at $18.50 for third quarter delivery and $19 for fourth quarter. More than 2200 tons of Southern iron is now going to the Pacific Coast via Panama Canal.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$18.00 to $19.00
No. 1 foundry, 2.25 to 2.75 sil.	19.00 to 19.50
Basic	18.50 to 19.50
Charcoal, warm blast	30.00 to 32.00

Cast Iron Pipe.—Unfilled tonnage with the cast iron pipe makers in this territory amounts to considerable, and there is warrant for steady operation of the several shops. Further business is in sight and no stock is accumulating. Pipe laying in various parts of the country evidently is being rushed. In Birmingham proper quite a little tonnage of pipe for gas and water mains is being placed. Additional pipe plants are announced. Quotations of cast iron pressure pipe remain steady at $40 per ton, 6 in. and over, with an upward trend.

Finished Steel.—Plants of the Steel Corporation are maintaining the pace that has been theirs for some time while the plant of the Gulf States Steel Co. is operating three out of six open-hearth furnaces and the better portion of the finishing mills. Steel rail making is being pushed, 3000 tons of rails being exported this week via Mobile port and thence through the Panama Canal. Fabricating plants of the district on structural shapes are finding more business in adjoining States where building activities are very noticeable. Soft steel bars are still at 2.15c. to 2.25c.

Coke.—Foundry coke is being held at $4.50 to $5 and independent producers report steady movement of their product. Expectation is that a strike in the coal fields may bring about improved demand for Southern coke but no active steps have been taken by consumers or dealers in the territories likely to be affected. With one exception all by-product coke plants of this district are operating to capacity.

Old Material.—Better conditions in the old material market are noted, much scrap moving. Dealers are still declining long time contracts believing that quotations will soon show improvement. Heavy melting steel at $13 offers some inducement but the sales are not any greater than on other products. In the aggregate the business is better than a month ago.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	16.00 to 17.00
Iron axles	16.00 to 17.00
Steel rails	13.00 to 14.00
No. 1 cast	16.00 to 16.50
Tramcar wheels	16.50 to 17.00
Car wheels	15.00 to 16.00
Stove plate	13.00 to 13.50
Machine shop turnings	7.00 to 8.00
Cast iron borings	7.00 to 8.00
Rails for rolling	16.50 to 17.00

Strong Scrap Outlook in Detroit

DETROIT, Aug. 4.—A real active interest was shown in the bidding on August releases of waste material in the district, and while there has been a lull for the last three or four days, the market shows a very strong tone. Hydraulic compressed registered an advance of 50c. per ton, with heavy melting and shoveling steel borings, short and long turnings showing a 25c. advance. With new models in production, the motor car industry has a high schedule slated for August, and the melt in general will equal that of July.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$13.75 to $14.25
Borings and short turnings	11.00 to 11.50
Long turnings	10.50 to 11.00
No. 1 machinery cast	15.00 to 16.00
Automobile cast	21.00 to 22.00
Hydraulic compressed	13.00 to 13.50
Stove plate	12.50 to 13.00
No. 1 busheling	12.50 to 13.00
Sheet clippings	8.75 to 9.25
Flashings	11.50 to 12.00

Cleveland

Pig Iron Fairly Active — Firmness in Semi-finished Steel

CLEVELAND, Aug. 4.—Mills continue to book a fair tonnage of steel bars, plates and structural material but orders are almost entirely for small lots for immediate requirements and the volume of business shows little change as compared with the past few weeks. Some additional steel bar contracts for the third quarter have been placed but few consumers see any advantage in making contracts in view of the present market situation. Sentiment in the steel trade and among consuming industries is generally optimistic and there is a belief that good crops and satisfactory prices for farm products will stimulate general business conditions in the fall. New models and reduced prices are helping to keep up the sale and production of automobiles but new demand for steel by automobile companies and specifications on contracts are not so heavy as a few weeks ago. The outlook in the structural field shows an improvement after a lull of several weeks. Railroad and highway bridge work are in prospect in this territory requiring a large tonnage. Inquiries that have been out for some time for seven Lake boats are still active. There is virtually no change in the price situation. Steel bars are firm in this market at 2c. The weakness in structural material that has appeared in the East does not seem to have reached this market, where 2c. is the common quotation, although this has not been tested by any large lot inquiry. Plates are moving freely in small lots at 1.90c. but this is shaded occasionally to 1.80c. on an attractive order.

Pig Iron.—The market continued fairly active during the week. Local interests booked over 20,000 tons in foundry and malleable iron, mostly for the fourth quarter. Two leading producers report sales of 40,000 tons each during July. While most of the orders were for small lots, one foundry bought 1500 tons and two others 1000 tons each. One producer received additional inquiries for 3000 tons for the first quarter and first half and now has inquiries for a total of 7000 tons for next year. Quotations have not yet been made on these inquiries but the furnace will try to get higher than the prevailing prices. Another producer has received a few inquiries for next year but has refused to quote. Some of the Lake furnaces are taking a somewhat firmer stand on prices. On the other hand $18 foundry iron has not disappeared in the Valley district and a Cleveland furnace took some business at that price during the week, claiming that it had to make the concession from the $18.50 price to meet Valley competition. One Lake furnace interest is holding to $19 for foundry and malleable iron, which is the ruling price in western Ohio and Michigan. For Cleveland delivery the price is firm at $19.50 at furnace. Producers still find shipments an encouraging feature of the market situation. Some of the furnaces shipped more iron in July than in June. A fair volume of inquiry is pending, including one from a Columbus melter for 2000 tons of foundry iron.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6 from Birmingham:

Basic, Valley furnace	$18.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	20.00
Southern fdy., sil. 1.75 to 2.25	$23.51 to 26.01
Malleable	20.00
Ohio silvery, 8 per cent	29.02
Standard low phos., Valley furnace	27.50 to 28.00

Iron Ore Shipments.—Shipments of Lake Superior ore by water during July showed a gain over both May and June. Shipments were 8,525,063 tons as compared with 7,958,486 tons during June. Shipments in July last year were 7,280,014 tons. The movement by water up to Aug. 1 this year was 26,918,248 tons as compared with 22,107,142 tons for the same period a year ago, or a gain of 21.76 per cent.

Bolts, Nuts and Rivets.—The volume of orders for bolts and nuts, both in new business and specifications

on contracts, continues satisfactory. Makers are adhering to regular discounts. The rivet market is very dull and lacks strength. On large rivets $2.50 appears to be the more common quotation.

Semi-Finished Steel.—The market shows more activity than for several weeks but consumers are buying only in small lots for early requirements. A local mill booked several small orders during the week for sheet bars and strip mill slabs at $35, Cleveland. The market appears firm at that price for sheet bars, billets and slabs and less effort is being made to secure concessions than a few weeks ago.

Sheets.—New demand for sheets from consumers outside the automobile field has improved somewhat, but the tonnage coming from the automotive industry, mostly in specifications on contracts, is not so heavy as recently. The market appears to have become more firmly established at 3.15c. for black sheets and 2.30c. for blue annealed sheets but desirable orders are still bringing out quotations $2 a ton lower. Galvanized sheets are firm at 4.20c.

Strip Steel.—New demand for hot rolled strip is rather light but prices are well maintained at 2.40c. for narrow strip, and 2.20c. for 6 in. and wider material. The demand for cold rolled strip from the automotive industry continues fairly heavy and the 3.75c. price is firmly maintained.

Reinforcing Bars.—The Pollak Steel Co. has taken 1050 tons for a warehouse for the Firestone Tire & Rubber Co., Akron. Considerable road work requiring reinforcing bars is being figured on, but not much new building work is coming out. Price concessions are being made on attractive orders. Rail steel bars range from 1.75c. to 1.80c.

Warehouse Business.—Demand for steel out of stock continues good. Prices generally are well maintained.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 3.90c.; No. 28 galvanized sheets, 5.10c.; No. 10 blue annealed sheets, 3.10c.; cold-rolled rounds and hexagons, 3.80c.; flats and squares, 4.30c.; hoops and bands, 3.85c.; No. 9 annealed wire, $3 per 100 lb.; No. 9 galvanized wire, $3.45 per 100 lb.; common wire nails, $3 base per 100 lb.

Coke.—Prices on standard brands of Connellsville coke are unchanged at $4 to $5 per net ton for prompt shipment. Some makers are asking about 50c. a ton more for contracts and others are not taking contracts. Low grade foundry coke and medium sulphur furnace coke used for heating purposes are firmer, with $3 reported as the minimum price.

Old Material.—There is very little buying by consumers but there is considerable activity among dealers, particularly on blast furnace scrap and most grades have advanced 25c. and in some cases more per ton. Dealers are paying more for scrap either to fill old orders or for speculative purposes than mills are willing to pay. For delivery to local mills dealers are offering $17 to $17.50, depending on specifications, for heavy melting steel. Some of the borings and turnings offered by the Detroit automobile manufacturers last week were bought by Cleveland dealers at $14 to $14.50.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$16.00 to $16.50
Rails for rolling	16.00 to 16.50
Rails under 3 ft.	19.00 to 19.50
Low phosphorus melting	18.00 to 18.25
Cast iron borings	13.75 to 14.00
Machine shop turnings	13.75 to 14.00
Mixed borings and short turnings	13.75 to 14.00
Compressed sheet steel	14.25 to 14.75
Railroad wrought	13.50 to 14.00
Railroad malleable	18.25 to 18.50
Light bundled sheet stampings	11.25 to 11.75
Steel axle turnings	15.00 to 15.25
No. 1 cast	18.00 to 18.25
No. 1 busheling	13.75 to 14.00
Drop forge flashings	13.00 to 13.50
Railroad grate bars	13.50 to 13.75
Stove plate	13.50 to 13.75
Pipes and flues	11.00 to 11.25

Farmers are buying automobiles and tractors as they never have before, according to *Automotive Industries.*

Philadelphia

Lukens Steel Co. Reduces Wages—Large Basic Iron Sale

PHILADELPHIA, Aug. 4.—As things look today a suspension of work in the anthracite coal mines on Aug. 31 seems a certainty. Just what effect this strike will have on prices of bituminous coal and indirectly on coke and pig iron remains to be seen, but in some quarters it is regarded as assured that the influence of the strike will be far-reaching unless it should be of short duration. The further threat of trouble in the soft coal fields is to be reckoned with. Pig iron prices have gained a little strength in the past week and the situation with producers is such that any outside influence would quickly react on prices.

The expected reduction of wages at the plant of the Lukens Steel Co., Coatesville, Pa., went into effect on Aug. 1, the company making the following announcement, signed by the new president, Robert W. Wolcott: "In line with my notice of July 7, 1925, there will be a reduction of approximately 10 per cent in wages beginning Aug. 1, 1925. Whereas the present conditions fully warrant a greater reduction, our management feels that you fully realize this situation and will therefore put such extra effort and care into your work that the costs will be reduced sufficiently to make any further revision in wages unnecessary." The basic wage rate formerly paid by the Lukens Steel Co. was 34 cents per hr., instead of 32 cents, as previously stated.

There have been no outstanding developments in the markets during the week except the purchase of 10,000 tons of basic pig iron by an Eastern steel company. This registers a lower price on basic than has been quoted recently, but foundry iron prices are firmer and the minimum with most producers is now $20.50 for No. 2 plain. Scrap prices are strong and advancing on moderate purchases.

Pig Iron.—An Eastern plate manufacturer bought 10,000 tons of basic pig iron from a steel company at a price reported to be about $20.50, delivered. This is $1 a ton less than the last reported sale two months or so ago. In last week's transaction, however, there was no freight rate of importance involved, only a switching charge. There have been substantial sales of low phosphorus iron, one New Jersey consumer taking 2000 tons, which is reported to have been sold at about $23, Eastern furnace. This was copper bearing low phosphorus, the copper free iron selling at $22 to $23, furnace, the exact furnace price depending on the destination. Sales of foundry iron have been in moderate-sized lots, usually about 100 to 200 tons, and prices have been a little firmer, some furnaces now naming $20.50 on No. 2 plain and $21 on No. 2X as absolutely minimum. There have been a few sales during the week, however, on the $20 base. Sales of foreign pig iron in July were large in this district, one selling office having disposed of 35,000 tons within the month. Indian iron, which is leading among foreign irons, is quoted at $20 to $20.50, c.i.f., duty paid, Philadelphia. All furnace representatives here were certain today that within another week domestic iron will not be obtainable below $20.50, furnace, for the base grade.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rate varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$20.76 to $21.63
East. Pa. 2X, 2.25 to 2.75 sil.	21.26 to 22.13
East. Pa. No. 1X	21.76 to 22.63
Virginia No. 2 plain, 1.75 to 2.25 sil.	28.67 to 29.17
Virginia No. 2X, 2.25 to 2.75 sil.	29.17 to 29.67
Basic delivery eastern Pa.	20.50 to 21.50
Gray forge	21.00 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	23.00 to 24.00

Ferroalloys.—There is no change in the price of ferromanganese, which continues at $115, furnace or seaboard, for both domestic and foreign alloy.

Billets.—Prices are nominal at $35, Pittsburgh, for rerolling quality and $40 for forging billets. These prices are subject to concessions.

Plates.—All Eastern plate mills are now quoting 1.80c., Pittsburgh, on attractive business. Some mills have three prices, 1.80c., 1.85c. and 1.90c., the price given to each buyer depending on the character and size of the specification. Less-than-carload buyers must pay 1.90c. in practically all cases. The mills are getting a fair volume of business, at least enough to maintain operations at the rate of recent weeks, and they feel encouraged that August buying will be better.

Structural Shapes.—A request for bids on the first of the buildings to be built for the Philadelphia Sesqui-Centennial Exposition has been sent out, and this is the forerunner of a large building program that will run into many thousands of tons of steel. There is keen competition for orders in this district, and prices of plain material continue to present a ragged market. Some of the prices quoted, if figured back to a Pittsburgh basis, would mean about 1.75c. or 1.80c., that point. Some Eastern mills frequently quote 2c. to 2.05c., mill.

Bars.—A moderate business in steel bars is being done, with no concessions from the price, which has been held firmly at 2c., Pittsburgh, despite the wobbling tendency of other hot rolled products. Slight concessions have been made on bar iron, about $1 a ton in the Philadelphia district, but in New York a few Eastern mills have quoted as low as 1.80c., Pittsburgh. The range for Philadelphia delivery is 2.19c. to 2.22c.

Sheets.—Most of the sheet manufacturers announced an advance in prices, effective Aug. 1, on black and galvanized, the former being put up to 3.20c. and the latter to 4.30c., Pittsburgh. A recent advance on galvanized to 4.20c. proved effective, but the advance on black to 3.15c. was not wholly successful, and in fact the market today is more nearly 3.10c. Apparently there is a determined effort to eliminate unprofitable sheet business, and the effect of the latest advance will be watched with interest by both buyers and sellers. Blue annealed sheets are unchanged at 2.25c. to 2.30c., Pittsburgh.

Warehouse Business.—The volume of warehouse business is fairly satisfactory, but jobbers complain of ruinous price competition, and efforts to eradicate it have not been successful so far. Most of the prices quoted below are subject to concessions:

Soft steel bars and small shapes, 2.90c.; iron bars (except bands), 2.90c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 2.90c.; tank steel plates, ⅜ in., 3.05c. to 3.10c.; blue annealed steel sheets, No. 10 gage, 3.35c.; black sheets, No. 28 gage, 4.35c.; galvanized sheets, No. 28 gage, 5.45c.; square, twisted and deformed steel bars, 2.85c.; structural shapes, 2.80c.; diamond pattern plates, ¼-in., 5.30c.; ⅜-in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4c.; squares and flats, cold-rolled steel, 4.50c.; steel hoops, 4c. base; steel bands, No. 12 gage to ⅜ in., inclusive, 3.75c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Imports.—Last week's imports of pig iron were 2000 tons from England and 1203 tons from India. Other iron and steel imports were inconsequential.

Old Material.—Without much buying to support it, the scrap market continues to show a degree of strength which is somewhat baffling both to brokers and scrap consumers. The strength undoubtedly originates with the small scrap dealers, who seem imbued with the idea that steel business is going to show such improvement as to bring about larger scrap consumption. The views of the average scrap dealer are so strong that he is not willing to sell anything he has accumulated at prices that are now being offered. One large scrap company, having several thousands of tons of scrap to ship, was able to buy very little last week at any price it could afford to pay. Under such circumstances brokers freely predict that, if a steel company were to come into the market for a round tonnage of heavy melting steel, it would have to pay not less than $17 and probably as much as $18, delivered eastern Pennsylvania. The only important buying of the week involved bundled sheets and borings and turnings for open-hearth use, and both of these grades brought $14 delivered.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$16.00 to	$17.00
Scrap rails	16.00 to	17.00
Steel rails for rolling	18.00 to	18.50
No. 1 low phos. heavy 0.04 and under	21.00 to	22.00
Couplers and knuckles	20.50 to	21.00
Rolled steel wheels	20.50 to	21.00
Cast iron car wheels	18.50 to	19.00
No. 1 railroad wrought	17.50 to	18.50
No. 1 yard wrought	17.00 to	17.50
No. 1 forge fire	15.00 to	15.50
Bundled sheets (for steel works)		14.00
Mixed borings and turnings (for blast furnace use)	12.00 to	13.00
Machine shop turnings (for steel works use)		14.00
Machine shop turnings (for rolling mill use)		14.00
Heavy axle turnings (or equivalent)	15.50 to	16.00
Cast borings (for steel works and rolling mill)		14.00
Cast borings (for chemical plant)	16.00 to	16.50
No. 1 cast	18.00 to	18.50
Heavy breakable cast (for steel plants)		17.00
Railroad grate bars		14.50
Stove plate (for steel plant use)		14.50
Wrought iron and soft steel pipes and tubes (new specifications)		16.50
Shafting	23.50 to	24.50
Steel axles	23.50 to	24.50

RAILROAD EQUIPMENT

Largest Buying of Freight Cars in Many Weeks

Three railroads bought large lots of freight cars within the past few days. A few miscellaneous small orders bring the total to 2786 cars. The Central of Georgia and Missouri-Kansas-Texas Lines each bought 1000 box cars and the Texas & Pacific ordered 750 all-steel gondolas. Inquiries for cars are inconsequential and the small volume of pending business leaves some doubt as to the probable extent of railroad purchases during the remainder of the summer.

Freight cars in need of repair on July 15 totaled 199,672 or 8.6 per cent of the number on line, according to reports of the Car Service Division, American Railway Association. This was an increase of 1204 over the number reported on July 1. Class 1 railroads on July 15 had 11,224 locomotives in need of repair, 17.5 per cent of the number on line, and an increase of 307 over the number in need of repair on July 1.

The Central of Georgia has ordered 1000 box cars from the Tennessee Coal, Iron & Railroad Co. This road is inquiring for 10 locomotives.

The Texas & Pacific Railroad has ordered 750 all-steel gondolas from the Pressed Steel Car Co.

The Missouri-Kansas-Texas Lines have placed an order for 1000 50-ton single-sheathed box cars with the Mount Vernon Car & Mfg. Co.

Maderia, Hill & Co., have bought 25 mine cars from the American Car & Foundry Co.

The Sierra Railway, Jamestown, Cal., is inquiring for 1 locomotive and 60 50-ton or 75 40-ton hopper cars.

The United States Iron Works, Seattle, Wash., is inquiring for 10 50-ton flat cars.

The National Railways of Mexico are in the market for 10 express cars and 30 narrow gage coaches.

The American Car & Foundry Co. has booked orders for 10 trailer box cars from the Lima-Toledo and 1 tank car from the Western Paper Makers Co.

The Jay L. Herman Co., El Paso, Tex., has moved its general offices from the Mills Building to 311 San Francisco Street, where it has a display and salesroom. Among the firms it represents are the Foamite-Childs Corporation, SKF Industries, Inc., Chicago Belting Co., National Broom Co., Edison Lamp Co. and the Dewar Mfg. Co.

Prices of Finished Iron and Steel Products (Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb. ..... 1.90c.
F.o.b. Chicago, base, per lb. ..... 2.10c.

Structural Shapes

F.o.b. Pittsburgh mill, base, per lb. ..... 2c.
F.o.b. Chicago, base, per lb. ..... 2.10c.

Iron and Steel Bars

Soft steel bars, f.o.b. P'gh mills, base, per lb. ..... 2c.
Soft steel bars f.o.b. Chicago, base, per lb. ..... 2.10c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb. ..... 2c.
Rail steel bars, f.o.b. Chicago and f.o.b. Chicago district mills, base, per lb. ..... 2.00c.
Common iron bars, f.o.b. Chicago, base, per lb. 1.90c. to 2.00c.
Refined iron bars, f.o.b. P'gh mills, base, per lb. ..... 3.00c.
Common iron bars, eastern Pa. mill, base, per lb. ..... 2.10c.

Hot-Rolled Flats

Hoops, base (6 in. and narrower), per lb., Pittsburgh. 2.40c.
Bands, base (6 in. and narrower), per lb., Pittsburgh. 2.40c.
Strips, 6 in. and narrower, base, per lb., Pittsburgh ..... 2.40c.
Strips, 6 in. and wider, base, per lb., Pittsburgh ..... 2.20c.
Strips, 6 in. and narrower, Chicago ..... 2.40c. to 2.50c.
Strips, wider than 6 in., Chicago ..... 2.30c. to 2.40c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'hg mills, base, per lb., 2.50c. to 2.60c.
Screw stock and shafting, f.o.b. Chicago, base, per lb. ... 2.60c.
Screw stock, base, per lb., Cleveland ..... 2.65c.
Shafting, ground, f.o.b. mill, base, per lb. ..... 3.00c.
Strips, f.o.b. P'gh mills, base, per lb. ..... 3.75c.
Strips, f.o.b. Cleveland mills, base, per lb. ..... 3.75c.
Strips, f.o.b. delivered Chicago, base, per lb. ..... 3.90c.
Strips, f.o.b. Worcester mills, base, per lb. ..... 3.90c.

Wire Products

(To jobbers in car lots f.o.b Pittsburgh and Cleveland)

Nails, base, per keg $2.65
Galvanized nails, 1-in. and longer, base plus 2.00
Galvanized nails, shorter than 1 in., base plus 2.25
Bright plain wire, base, No. 9 gage, per 100 lb. 2.50
Annealed fence wire, base, per 100 lb. 2.65
Spring wire, base, per 100 lb. 3.50
Galvanized wire, No. 9, base, per 100 lb. 3.10
Galvanized barbed, base, per 100 lb. 3.35
Galvanized staples, base, per keg 3.35
Painted barbed wire, base, per 100 lb. 3.10
Polished staples, base, per keg 3.10
Cement coated nails, base, per count keg 1.85
*Bale ties, carloads, to jobbers ..... 75, 15 and 5 per cent off list
*Bale ties, carloads, to retailers ..... 75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers $65

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant, and Duluth, Minn., mills $2 a ton higher; Anderson, Ind., $1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed

(base) per lb.

Nos. 9 and 10, f.o.b. Pittsburgh ..... 2.30c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills, 2.40c. to 2.45c.

Box Annealed, One Pass Cold Rolled

No. 28 (base) per lb., f.o.b. Pittsburgh ..... 3.15c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill. 3.30c. to 3.35c.

Galvanized

No. 28 (base) per lb., f.o.b. Pittsburgh ..... 4.20c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill. 4.30c. to 4.40c.

Tin-Mill Black Plate

No. 28 (base) per lb., f.o.b. Pittsburgh ..... 3.15c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill. 3.25c. to 3.40c.

Automobile Body Sheets

No. 22 (base) per lb., f.o.b. Pittsburgh ..... 4.25c.

Long Ternes

No. 28 (base) 8-lb. coating, per lb., f.o.b. mill. 4.60c. to 4.75c.

Tin Plate

Standard cokes, per base box, f.o.b. Pittsburgh district mills $5.50
Standard cokes, per base box f.o.b. Chicago district mills 5.60
Standard cokes, per base box f.o.b. Elwood, Ind. 5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.20	20-lb. coating I. C.	$15.50
8-lb. coating I. C.	11.50	25-lb. coating I. C.	17.00
15 lb. coating I.C.	14.35	30-lb. coating I. C.	18.35
		40-lb. coating I. C.	20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb., $2.40 to $2.50
Large, f.o.b. Chicago, base, per 100 lb. 2.60
Small, f.o.b. Pittsburgh ..... 70 and 10 per cent off list
Small, Cleveland ..... 70 and 10 to 70, 10 and 10 per cent off list
Small, Chicago ..... 70, 10 and 5 per cent off list

Rails and Track Equipment

(F.o.b.)

Rails, standard, per gross ton $43.00
Rails, light, billet, base, per lb. ..... 1.60c. to 1.70c.
Rails, light rail steel, base, per lb. ..... 1.50c. to 1.60c.
Spikes, ½ in. and larger, base, per 100 lb. ..... $2.80 to $3.00
Spikes, ½ in. and smaller, base, per 100 lb. ..... 3.00 to 3.25
Spikes, boat and barge, base, per 100 lb. 3.25
Track bolts, all sizes, base, per 100 lb. ..... 3.90 to 4.25
Tie plates, per 100 lb. ..... 2.35 to 2.40
Angle bars, base, per 100 lb. 2.75

Welded Pipe

(F.o.b. Pittsburgh district mills)

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	2 to 3	61	50½
¼ to ⅜	47	30½	¼ to ⅜	+11	+54
½	53	42½	½	21	7
¾	58	47½	¾	28	12
1 to 1½	60	49½	1 to 1½	30	14

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1½ points, with supplementary discount of 5 per cent. On iron pipe, both black and galvanized, the preferentials to large jobbers are 1, 5 and 2½ per cent beyond the above discount.

NOTE—The above discounts on steel pipe also apply at Lorain Ohio. Chicago district mills have a base 2 points less. Chicago delivered base 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point having the lowest rate to destination.

Boiler Tubes

(F.o.b. Pittsburgh)

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3⅝ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3½ to 4½ in.	— 9

Beyond the above discounts, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ and 1½ in.	52	3¼ to 3½ in.	47
1¾ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ and 2¾ in.	39		

Hot-Rolled

2 and 2¼ in.	34	3¼ to 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing (Old List)

Carbon under 0.30 base ..... 86 to 88 per cent off list
Carbon 0.30 to 0.40 base ..... 84 to 86 per cent off list

Plus usual differentials and extra for cutting. Warehouse discounts range higher.

Seamless Mechanical Tubing (New List)

Carbon 0.10 to 0.30 base ..... 55 per cent off list
Carbon 0.30 to 0.40 base ..... 50 per cent off list

Plus differentials for lengths over 18 ft. and for commercially exact lengths.

Prices of Iron and Steel Products and Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 51.50 per cent iron	$4.55
Old range non-Bessemer, 51½ per cent iron	4.40
Mesaba Bessemer, 51.50 per cent iron	4.40
Mesaba non-Bessemer, 51.50 per cent iron	4.25
High phosphorus iron, 51.50 per cent	4.15

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus	45c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, high grade, per unit, in 60 per cent concentrates	$11.00 to $11.50
Chrome ore, Indian basic, 48 per cent Cr_2O_3, crude, per ton, c.i.f., Atlantic seaboard	20.00 to 24.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2, New York	65c. to 70c.

Coke and Coal

(Per Net Ton)

Furnace coke, f.o.b. Connellsville prompt	$2.90
Foundry coke, f.o.b. Connellsville prompt	3.75 to 4.25
Mine run steam coal, f.o.b. W. Pa. mines	1.50 to 2.00
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to 1.75
Mine run gas coal, f.o.b. W. Pa. mines	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines	1.35 to 1.40
Gas slack, f.o.b. W. Pa. mines	1.40 to 1.60

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	$115.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid	115.00
Ferrosilicon, 50 per cent, delivered	$82.50 to 85.00
Ferrosilicon, 75 per cent	145.00 to 147.50
Ferrotungsten, per lb. contained metal	1.00
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium	$3.50 to $4.00
Ferrocarbontitanium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent $32.00
Spiegeleisen, domestic, 16 to 19 per cent 31.00
Ferrosilicon, Bessemer, 10 per cent, $33; 11 per cent, $35; 12 per cent, $37; electric furnace ferrosilicon, 10 per cent, $38; furnace with an advance of $1 per unit for material above 10 per cent.
Silvery iron, 6 per cent, $24; 7 per cent, $25; 8 per cent, $25 to $26; 9 per cent, $27.50; 10 per cent, $29; 11 per cent, $31; 12 per cent, $33.

Fluxes and Refractories

Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, gravel, per net ton, f.o.b. Illinois and Kentucky mines	$16.00
No. 2 lump, per net ton	19.00
Fluorspar, foreign, 85 per cent calcium fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton	15.00 to 16.00
Fluorspar, No. 1 ground bulk, 95 to 98 per cent calcium fluoride, not over 2½ per cent silica, per net ton, f.o.b. Illinois and Kentucky mines	$2.50

Per 1000 f.o.b. works:

Fire Clay	High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton		6.50 to 7.50

Silica Brick:	
Pennsylvania	40.00
Chicago	49.00
Birmingham	54.00
Silica clay, per ton	8.00 to 9.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)	40.00
Chrome Brick:	
Standard size, per net ton	48.00

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

Machine bolts, small rolled threads..60 and 10 per cent off list
Machine bolts, all sizes, cut threads, 50, 10 and 10 per cent off list
Carriage bolts, smaller and shorter, rolled threads, 50, 10 and 10 per cent off list
Carriage bolts, cut threads, all sizes..50 and 10 per cent off list
Eagle carriage bolts ..... 65 and 10 per cent off list
Lag bolts ..... 60, 10 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads..50 and 10 per cent off list
Other style heads ..... 20 per cent extra
Machine bolts, c.p.c. and t. nuts, ⅝ x 4 in., 45, 10 and 5 per cent off list
Larger and longer sizes..... 45, 10 and 5 per cent off list
Hot-pressed nuts, blank and tapped, square..... 4c. off list
Hot-pressed nuts, blank or tapped, hexagons..... 4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped..4.10c. off list
Bolt ends with hot pressed nuts..50, 10 and 10 per cent off list
Bolt ends with cold pressed nuts..45, 10 and 5 per cent off list
Washers* ..... 6.10c. to 6c. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot pressed and cold punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

(Quoted with freight allowed within zone limits)

Semi-finished hex. nuts:
⅞ in. and smaller, U. S. S. ..... 80 and 5 per cent off list
⅝ in. and larger, U. S. S. ..... 75 and 5 per cent off list
Small sizes, S. A. E. ..... 80, 10, and 5 per cent off list
S. A. E., ⅝ in. and larger ..... 75, 10 and 5 per cent off list
Stove bolts in packages ..... 80, 10 and 5 per cent off list
Stove bolts in bulk ..... 80, 10, 5 and 2½ per cent off list
Tire bolts ..... 50, 10 and 5 per cent off list

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)

(To jobbers and consumers in large quantities)

	Per 100 Net S. A. E.	Per 100 Net U. S. S.		Per 100 Net S. A. E.	Per 100 Net U. S. S.
¼-in.	$0.44	$0.44	¾-in.	$2.35	$2.40
5/16-in.	.515	.515	⅞-in.	3.60	3.60
⅜-in.	.62	.66	1-in.	5.65	5.80
7/16-in.	.79	.90	1¼-in.	8.90	8.90
½-in.	1.01	1.05	1½-in.	12.60	13.10
9/16-in.	1.38	1.42	1¾-in.	18.35	18.35
⅝-in.	1.70	1.73	1¾-in.	21.00	21.00

Larger sizes—Prices on application.

Cap and Set Screws

(Freight allowed within zone limits)

Milled cap screws..... 80, 10 and 5 per cent off list
Milled standard set screws, case hardened, 80 an 10 per cent off list
Milled headless set screws, cut thread, 80 an 10 to 80 per cent off list
Upset hex. head cap screws, U. S. S. Thread, 80, 10, 10 and 5 per cent off list
Upset hex. cap. screws, S. A. E. Thread 80, 10 and 5 per cent off list
Upset set screws..... 80, 10 and 10 per cent off list
Milled studs ..... 75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over	$35.00
Forging billets, ordinary	40.00
Forging billets, guaranteed	45.00
Sheet bars	35.00
Slabs	35.00
*Wire rods, common soft, base, No. 5 to ⅜-in.	45.00
Wire rods, common soft, coarser than ⅜-in.	$2.50 over base
Wire rods, screw stock	$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40	2.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp, grooved, per lb.	1.90c.
Skelp, sheared, per lb.	1.90c.
Skelp, universal, per lb.	1.90c.

*Chicago mill base is $46. Cleveland mill base, $45.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E. Series Numbers	Bars 100 lb.
2100* (1½% Nickel, 10 to 20 per Cent Carbon)	$3.00 to $3.25
2300 (3½% Nickel)	4.50 to 4.75
2500 (5% Nickel)	6.00 to 6.25
3100 (Nickel Chromium)	3.50 to 3.65
3200 (Nickel Chromium)	5.50
3300 (Nickel Chromium)	7.50 to 7.75
3400 (Nickel Chromium)	6.50 to 6.75
5100 (Chromium Steel)	3.50
5200* (Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.25 to 4.50
6100 (Chromium Vanadium spring steel)	4.00 to 4.25
9250 (Silicon Manganese spring steel)	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium)	4.25 to 4.50
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for coal drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

FABRICATED STEEL

Awards About 28,500 Tons, and New Projects Up for Bids 20,000 Tons

Structural steel awards in the past week, as reported to THE IRON AGE, totaled roundly 28,500 tons, which was a falling off from the week before, but that week was unusual in respect to volume. New projects up for bids total about 20,000 tons. The largest award was 4040 tons for an ore dock to be built by the Great Northern Railway. Awards include:

Travelers Insurance Co., Hartford, Conn., office building, 1200 tons, to Levering & Garrigues Co.

Connecticut General Insurance Co., Hartford, Conn., office building, 400 tons, to Levering & Garrigues Co.

Third Avenue Railway System, car barns at Boston Post Road and 175th Street, New York, 600 tons, to Levering & Garrigues Co.

Roger Williams apartment building, Providence, R. I., 1000 tons, to Levering & Garrigues Co.

Laundry, Little Falls, N. J., 350 tons, to Hay Foundry & Iron Works.

Anaconda Copper Mining Co., electrolytic plant at Great Falls, Mont., 400 tons, to Minneapolis Steel & Machinery Co.

State office building, Columbia, S. C., 500 tons, to Carolina Steel & Iron Co.

New York Transit Co., building in Brooklyn, 400 tons, to unnamed fabricator.

Burroughs Library, Bridgeport, Conn., 500 tons, to unnamed fabricator.

Paramount Theater and office building, St. Petersburg, Fla., 900 tons, to Virginia Bridge & Iron Works.

St. Mary's Hospital, Passaic, N. J., 500 tons, to Oltmer Iron Works.

Prospect Park Branch, Y. M. C. A., Brooklyn, 1000 tons, to George A. Just Co.

Apartment building, Riverside Drive from Eighty-ninth to Ninetieth Street, New York, 2500 tons, to Paterson Bridge Co.

Office building, West Forty-fourth Street, New York, 350 tons, to George A. Just Co.

Addition to building at 75 Maiden Lane, New York, 400 tons, to A. E. Norton, Inc.

Frederick Loeser & Co., Brooklyn, warehouse, 1000 tons, to Levering & Garrigues Co.

Apartment building, West Ninth Street, New York, 400 tons, to Hay Foundry & Iron Works.

Duke University, Durham, N. C., several buildings totaling 2350 tons, to Easton Structural Steel Co.

Y-D garage, Worcester, Mass., 780 tons, to Eastern Bridge & Structural Co., Worcester.

Medical building, Worcester, 471 tons, to Eastern Bridge & Structural Co.

Draper Corporation, Beebe, N. H., manufacturing plant, 150 tons, to A. L. Smith Iron Works, Chelsea, Mass.

Elizabeth Manor, Philadelphia, 125 tons, to Jones & Laughlin Steel Corporation.

High school addition, Monongahela City, Pa., 100 tons, to Jones & Laughlin Steel Corporation.

Iron Mountain Gas Co., Iron Mountain, Mich., 20,000 cu. ft. gas holder to Stacey Mfg. Co.

M. Werk Co., Cincinnati, two 20,000 cu. ft. tanks, to Stacey Mfg. Co.

Great Northern Railway, extension to ore dock No. 1, Allouez Bay, Wis., 4020 tons, to American Bridge Co.

State highway bridge, Rock Rapids, Iowa, 203 tons, to American Bridge Co.

Bridge, Ralston, Okla., 1000 tons, to Kansas City Structural Steel Co.

Oakwood Boulevard viaduct, Chicago, 753 tons, to American Bridge Co.

Atlantic Theater, Chicago, alterations and additions, 100 tons, to McClintic-Marshall Co.

Army and Navy Y. M. C. A., Embarcadero, San Francisco, 1100 tons, to Pacific Rolling Mill Co., Inc.

Pacific Gas & Electric Co., boiler shop and generator building, Oakland, Cal., 100 tons, to Pacific Coast Engineering Co.

Morton Salt Co., Newark, Cal., 500 tons, to McClintic-Marshall Co.

Oakland-Alameda estuary tube, Oakland, Cal., 600 tons, to Central Iron Works.

High school, Los Angeles, 100 tons, to Minneapolis Steel & Machinery Co.

Puget Sound Light & Power Co., Seattle, Wash., 100 tons, to Wallace Equipment Co.

Southern Counties Gas Co., Los Angeles, compressor tanks at Santa Ana and Ontario, Cal., 1890 tons, to unnamed fabricator.

Lacy Mfg. Co., Los Angeles, 210 tons, to unnamed Eastern independent mill.

Illinois Central Railroad, Broadway subway, Bradley, Ill., 138 tons, to McClintic-Marshall.

Michigan Central Railroad, outbound freight house, Detroit, 135 tons, to American Bridge Co.

City of San Francisco, San Jose and Mt. Vernon Avenue Bridge, 116 tons, to Golden Gate Iron Works.

Pacific Gas & Electric Co., addition to gas plant, San Francisco, 120 tons, to California Steel Co.

Santa Fe Railroad, machine shop, at San Bernardino, Cal., 100 tons, to McClintic-Marshall Co.

Associated Oil Co., San Francisco, 100 tons, to an Eastern mill.

Theater and office building, Santa Anna, Cal., 125 tons; bids in.

Ford bridge, St. Paul, Minn., 1400 tons, to American Bridge Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Philadelphia General Hospital, Philadelphia, 2000 tons; F. W. Mark Construction Co., low bidder. Previously reported as 2800 tons, but plans have been revised.

Sesqui-Centennial, Philadelphia, building No. 1, 1000 tons.

Junior-Senior high school, Bloomsburg, Pa., 500 tons.

Office building, New York, Shroder & Kopeel, general contractors, 1000 tons.

Perlman loft building, West Thirty-fifth Street, New York, 800 tons.

Arthur Brisbane, office building on East Fifty-seventh Street, New York, 800 tons.

Pennsylvania Railroad, bridge in Philadelphia, 600 tons.

Schupe Terminal Co., dock shed at Kearney, N. J., 1000 tons.

Theater, Cambridge, Mass., 189 tons.

McKinloch Memorial Dormitory, Cambridge, Mass., 400 tons.

Grandstand, Lawrence, Mass., 430 tons.

Bridge, Gaylorsville, Conn., 300 tons.

Municipal Building, Ashland, Ky., 250 tons.

Dayton Savings & Trust Co., Dayton, Ohio, addition, tonnage unknown; bids being received by Herman & Brown, architects, Reibold Building, Dayton.

Great West Sugar Co., plant, Johnston, Cal., 770 tons.

Mack Trucks Corporation, building, Chicago, 675 tons.

Humble Oil Co., 15 oil storage tanks, Baytown, Tex., 4500 tons.

Oil storage tanks, Vancouver, B. C., 3000 tons.

City of Racine, Wis., bridge at Mead and Marquette Streets, 200 tons; A. C. Jensen, Racine, low bidder at $52,200.

Olequa toll bridge, Olequa, Wash., 300 tons; Union Bridge Co. general contractor.

Associated Oil Co., Los Angeles, one 80,000-bbl. tank, 300 tons.

La Puente Valley Water District, Los Angeles County, Cal., 200 to 300 tons of blue annealed sheets; bids close August 11.

Contract Water Co., Azusa, Cal., 200 tons of blue annealed sheets; Los Angeles Mfg. Co. low bidder.

Sterling Welch Co., Cleveland, warehouse, 800 tons.

Lucas County bridge, Toledo, Ohio, 250 tons; general contract placed with J. H. Berke-Bite & Sons.

Rochester Savings Bank, Rochester, N. Y., 1000 tons.

The Research Service, Inc., of which F. B. Newell is president and W. M. Corse, vice-president and general manager, has removed its offices from the Investment Building, Washington, to 706-7 Otis Building, that city.

A dam and hydro-electric plant will be built by the Ambursen Construction Co., Inc., New York, on the Ammonusoc River at Bethlehem, N. H., for the Bethlehem Electric Co., Howard M. Turner, Boston, consulting engineer.

NON-FERROUS METALS

The Week's Prices

Cents Per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
July	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
29.....	14.50	14.12½	58.75	8.55	8.30	7.72½	7.37½
30.....	14.50	14.12½	58.45	8.55	8.40	7.70	7.35
31.....	14.50	14.12½	59.25	8.55	8.50	7.75	7.40
August							
1.....	14.60	14.12½	....	8.65	8.80	7.75	7.40
3.....	14.62½	14.25	59.25	8.85	8.90	7.80	7.45
4.....	14.62½	14.37½	59.25	9.00	8.90	7.85	7.50

*Refinery quotation; delivered price ¼ higher.

New York

NEW YORK, Aug. 4.

The markets are more active and higher. Copper prices have advanced. The tin market has been moderately active and a little higher. Prices of lead continue upward with demand increasing. Higher prices have developed in the zinc market.

Copper.—More active buying by consumers, followed by higher prices, has developed since the settlement of the coal strike question in England. That industrial crisis was holding back not only the copper but other markets here and abroad. Since the settlement of that trouble consumers here have become more active and substantial buying has developed. Yesterday considerable business was done in electrolytic copper at 14.50c., delivered, but by noon today metal at this price had practically disappeared and producers had advanced prices to 14.62½c. Sales are reported at both 14.60c. and later at 14.62½c. Most of the buying has been for August-September-October delivery. Consumers are evidently in a better position as to orders and the entire market has a very favorable aspect. Lake copper is quoted at 14.62½c.

Copper Averages.—The average price of Lake copper for the month of July, based on daily quotations in THE IRON AGE, was 14.32½c., delivered. The average price of electrolytic copper was 13.95c., refinery, or 14.20c., delivered.

Tin.—The week has been a quiet one with total sales of Straits tin estimated at about 1000 tons, about equally divided between dealers and consumers. Yesterday being a bank holiday in London almost no business was done here and the market today was only moderately active. Spot Straits tin today was quoted at 59.25c., New York. London prices today were about £8 per ton higher than a week ago, with spot standard quoted at £264 10s., future standard at £267 and spot Straits at £270 10s. The Singapore price yesterday was £271. The higher levels are due largely to the removal of the coal menace. Deliveries into consumption in July at 6475 tons, with 2414 tons in stock and landing on July 31, are considered as exceedingly good and as indicating large quantities going into consumption. Arrivals thus far this month have been 1540 tons, with 5080 tons reported afloat.

Lead.—The leading interest advanced its contract price twice during the week—on July 30 to 8.30c. and on Aug. 3 to 8.50c., New York. The leading interest at St. Louis is reported to be selling limited quantities at 8.50c. with other sellers as high as 9c. or more. In the outside market at New York prices as high as 9.20c. are reported. Under such conditions an average appraisal of the market is difficult, but we place it at 8.90c., St. Louis, or 9c., New York. Consumption continues very heavy and the demand is attributed both to a desire by consumers to cover future needs or to actual present consumption requirements or to both.

Zinc.—Higher ore prices and better domestic demand, as well as some prospects of exports, have contributed decided strength to the market. Prime Western zinc is quoted at 7.50c., St. Louis, or 7.85c., New York, the highest prices in some time.

Nickel.—Wholesale lots of ingot nickel are quoted unchanged at 34c. with shot nickel at 35c. Electrolytic nickel is quoted at 38c.

Antimony.—Chinese metal for spot delivery is a little easier but still scarce at 17.75c., New York, duty paid, with August arrival held at 17.25c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Old Metals.—Business is fairly active on a strong market. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	13.75
Copper, heavy and wire	12.75
Copper, light and bottoms	11.25
Heavy machine composition	10.25
Brass, heavy	8.50
Brass, light	7.50
No. 1 red brass or composition turnings	9.50
No. 1 yellow rod brass turnings	9.25
Lead, heavy	7.75
Lead, tea	6.75
Zinc	5.25
Cast aluminum	19.50
Sheet aluminum	19.50

Chicago

AUG. 4—All of the virgin metals have advanced on stronger demand except in the case of tin, which is influenced primarily by increased strength in the London market. Among the old metals grades of copper, brass, lead and tin have risen. We quote, in carload lots: Lake copper, 14.62½c.; tin, 60c.; lead, 8.95c.; zinc, 7.45c.; in less than carload lots, antimony, 19c. On old metals we quote copper wire, crucible shapes and copper clips, 11.50c.; copper bottoms, 10c.; red brass, 9c.; yellow brass, 7.50c.; lead pipe, 7c.; zinc, 4.25c.; pewter, No. 1, 32.50c.; tin foil, 41c.; block tin, 46c.; all buying prices for less than carload lots.

Consolidations with Union Drawn Steel Co.

Final details of the consolidation of the Peerless Drawn Steel Co., Massillon, Ohio, and the Standard Gauge Steel Co., Beaver Falls, Pa., with the Union Drawn Steel Co., Beaver Falls, announced in THE IRON AGE, March 26, page 913, were completed at the annual meeting of the stockholders of the latter at Beaver Falls recently. To cover the increase in the investment resulting from the acquisition of these companies, an increase in the capital stock of the Union Drawn Steel Co. from $6,000,000 to $10,000,000 was approved. Directors were elected and they subsequently organized as follows: L. R. Davidson, Buffalo, chairman; Eugene S. Hoopes, president; E. H. Birney, first vice-president and general manager; Clifford H. Beegle, second vice-president and assistant secretary; George B. Mitchell, vice-president and general manager of sales; Edward C. Rebeske, secretary and treasurer; Herbert A. May, assistant treasurer; H. T. Wasson, general councillor.

Committee on Transfer of Bureau of Mines

J. V. W. Reynders, president of the American Institute of Mining and Metallurgical Engineers, New York, is chairman of the committee appointed by Secretary Herbert Hoover to consider matters of policy and reorganization relative to the transfer of the Bureau of Mines from the Department of the Interior to the Department of Commerce. With Mr. Reynders on the committee are: C. P. White, chief of the coal division of the Bureau of Foreign and Domestic Commerce, Washington, secretary; H. Foster Bain, formerly director of the bureau, New York; J. G. Bradley, formerly president of the National Coal Association, Dundon, W. Va.; L. S. Cates, president of the American Mining Congress, Salt Lake City, Utah; D. M. Folsom, vice-president of the American Petroleum Institute, San Francisco; Philip Murray, vice-president of the United Mine Workers of America, Pittsburgh. The first meeting of the committee was called for Thursday morning, Aug. 6, at the Commerce Building, Washington.

PERSONAL

Charles S. Proudfoot has been made general manager of the United States Ferro Alloys Corporation division of the Vanadium Corporation of America, with headquarters at Niagara Falls, N. Y. Prior to accepting this appointment on July 16, Mr. Proudfoot was electrical engineer at the Bethlehem Steel Corporation's Cambria plant, Johnstown, Pa., which position he had held since the spring of 1919. For many years he was associated with the Carnegie Steel Co. organization in various engineering capacities, becoming assistant superintendent of the electrical department for the Homestead steel works, Carrie furnaces, Howard axle works and Schoen steel wheel works. This position he resigned in 1919 to accept the appointment at Johnstown.

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Ben H. Miller, manager of production, United Alloy Steel Corporation, Canton, Ohio, has announced his resignation, effective Aug. 1. He has been with the United company for the past 14 years. He expects to enjoy an extended vacation prior to engaging in other work.

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A. D. Merwin, formerly connected with the Steele & Johnson Mfg. Co., Waterbury, Conn., has joined the organization of the Bridgeport Brass Co. as sales manager of the fabricating division.

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W. E. Porter, Brooklyn representative of J. K. Larkin & Co., has resigned, effective Aug. 1, and has joined the sales force of the Carroll-McCreary Co., of Long Island City, N. Y.

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R. W. Gotshall has been appointed vice-president and general manager, and H. B. Baker, vice-president and director of sales of Monarch Tractors, Inc., Watertown, Wis. Mr. Gotshall was formerly assistant manager of the Holt Mfg. Co., Peoria, Ill., and his experience of 17 years there included many phases of domestic and foreign sales, designing and engineering, supervision of manufacture, purchasing, and other executive capacities. For the past 12 years Mr. Baker was sales manager of the Holt company and also had charge of national advertising programs.

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R. J. Wysor, who has been assistant general manager of the Cambria works, Bethlehem Steel Corporation, at Johnstown, Pa., since the acquisition of the Midvale Steel & Ordnance Co. by the Bethlehem company, has resigned that position to become assistant general manager of the Jones & Laughlin Steel Corporation, Pittsburgh. Before going to Johnstown Mr. Wysor had been assistant general manager of the Sparrows Point plant, Bethlehem Steel Corporation. He will assume his new duties Aug. 15.

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H. D. Westfall, general manager of sales, Wheeling Steel Corporation, has resigned, ending a connection with that interest of 22 years. He plans to take a rest for the next few months before again engaging in business. He has been identified with the steel industry since 1895, when he became associated with the New Philadelphia Iron & Steel Co., New Philadelphia, Ohio, and was assistant manager of sales when it was absorbed by the American Sheet Steel Co. in 1900. He then went to the general sales offices of the American Sheet Steel Co. in New York, remaining there until 1903, when he went with LaBelle Iron Works, Steubenville, Ohio, serving this company successfully as manager of sales, secretary, and finally vice-president, holding the latter position until the merger of LaBelle Iron Works, the Wheeling Sheet & Iron Co. and the Whitaker, Glessner Co., into the Wheeling Steel Corporation in 1920. Most of the time since he has been active in the sales department, having been general manager of sales a little more than two years when the Wheeling Steel Corporation, which has been a holding company, became an operating company through the surrender by the component companies of their charters.

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Elmer T. McCleary has been promoted from works manager of the Youngstown Sheet & Tube Co. in the Youngstown district to assistant vice-president. In this capacity he will be associated with vice-presidents Charles S. Robinson and William C. Reilly in the operating management of the company's properties.

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Frank C. Farrell has been advanced from works superintendent, Youngstown Sheet & Tube Co., at East Youngstown, to district manager of the Youngstown district. He will be assisted by A. W. Smith, appointed works superintendent of the plants at East Youngstown, Struthers and Hubbard. H. L. Brinker becomes works superintendent at the Brier Hill plant, Youngstown, and the Western Reserve sheet mills, Warren. E. F. Vogel will be assistant works superintendent of the East Youngstown, Struthers and Hubbard properties. H. Glenn Heedy, who has been secretary to vice-president Robinson, has been appointed assistant to Mr. Robinson and E. H. Stillman has been made assistant to W. B. Gillies, district manager of the Chicago district.

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Fred M. Randlett has been appointed district manager of the Pacific Northwest territory for the Robert W. Hunt Co., consulting engineers with general offices at Chicago. Mr. Randlett has been chief engineer of the water department of Portland, Ore., for the past eight years. Previously he was engaged in the engineering departments of the New York, New Haven & Hartford Railroad and Stone & Webster, Inc.

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Edward S. King, 432 Dwight Building, Kansas City, Mo., district representative for the United States Electrical Tool Co., is also district representative in that territory for the Whiting Corporation, Harvey, Ill., and the Cowan Truck Co., Holyoke, Mass.

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E. P. Blanchard, advertising manager Bullard Machine Tool Co., Bridgeport, Conn., has taken over the additional duties of assistant sales manager.

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Lee W. Tomlin, assistant to the general manager, Remy Electric Co. plant, Anderson, Ind., has been appointed assistant to the general manager of the General Motors Export Corporation. E. Hall of the sales office of the Remy company at Detroit has been appointed to succeed Mr. Tomlin as assistant to the general manager at Anderson.

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E. A. Spring, manager Globe Foundry & Machine Co., Globe, Ariz., has resigned to become head of the Capital Foundry Co., Phoenix, Ariz.

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Charles O. Cromwell, with offices at 2230 First National Bank Building, Detroit, has been appointed Detroit representative of the Hoefer Mfg. Co., Freeport, Ill., covering auxiliary drilling heads made by the company.

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B. W. Gilson, who has been manager of the electrical department of the Ohio Works, Carnegie Steel Co., became superintendent of electric light and power for the company in the Youngstown district on Aug. 1.

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William J. Jones, for 27 years employed in the Youngstown district by the Carnegie Steel Co., has been appointed superintendent of transportation and chief of the labor division in the Youngstown area, succeeding William Griffin, deceased.

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George W. Traut, formerly president Traut & Hine Mfg. Co., has been made a vice-president of the North & Judd Mfg. Co., New Britain, Conn. The Traut & Hine company recently was absorbed by the North & Judd Mfg. Co.

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J. B. Kennedy, formerly chairman of directors of the Brier Hill Steel Co., now part of the Youngstown Sheet

& Tube Co., spoke briefly on Aug. 3 at the laying of the cornerstone for the new Stambaugh Memorial Auditorium being erected in Youngstown. No elaborate exercises were held. The auditorium, for which the steel work is now being erected, is the gift to the community of Henry H. Stambaugh, steel maker and formerly chairman of the Brier Hill company, who died in 1918. With an endowment fund for maintenance, the project will represent an investment totaling $1,500,000.

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Russell Davis, superintendent of the Lakeside plant of the Otis Steel Co., Cleveland, has been appointed general superintendent of all the mill departments of the company. Paul E. Butler, who has been superintendent of the open hearth department has resigned, effective Aug. 1, and will reside in Chicago after Sept. 1. James O'Neil succeeds him as general superintendent, open hearth department.

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Sir Arthur Balfour, president Balfour Steel Co., Sheffield, England, will spend a few days in Cleveland during the second week in August and will address the Cleveland Engineering Society and associated organizations. The date for the meeting has not yet been set. He is one of the industrial leaders of the British Empire, a cousin of the former British premier and past-president of the Chamber of Commerce of Great Britain.

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F. S. Van Bergen has been appointed district sales manager in Minneapolis for the W. A. Jones Foundry & Machine Co., Chicago. He will cover Minnesota, North Dakota, South Dakota and parts of Iowa and Wisconsin, handling the company's entire line.

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Clifford B. Bellis, formerly a member of the editorial staff of *Chemical and Metallurgical Engineering*, has opened an office as a consulting metallurgist, at 161 Milk Street, Boston. He specializes on steel and its heat treatment, industrial heat problems and technical publicity writing.

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N. A. V. Paulsson, for several years chief engineer of the Ludlum Steel Co. and of Corning & Co., Watervliet, N. Y., has become president of the newly formed Uddeholm Co. of America, Inc., 52 Vanderbilt Avenue, New York. The new company will handle Swedish steels.

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A. E. Willert resigned Aug. 1 as manager of sales in the stove division, Wheeling Corrugating Co., to become associated with the Teller Corporation as first vice-president and general manager with headquarters at the company's general offices in Chicago. The Teller Corporation controls eight stove plants, located in different parts of the country.

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Robert Roadhouse, for many years in charge of the enameling department of the Benjamin Electric plant at Des Plaines, Ill., has been appointed to the service staff of the Ferro Enamel Supply Co.

OBITUARY

WILLIAM MCCONWAY, president McConway & Torley Co., Pittsburgh, and a prominent figure in the industrial and civic affairs of that city, died at St. Francis Hospital, Pittsburgh, July 28, following an operation. Mr. McConway was born in Desertmartin, County Derry, Ireland, Feb. 14, 1842, and came to the United States with his parents at the age of 7. His parents settled in Pittsburgh and he attended school until the age of 12, when he went to work at the old Novelty Iron Works. After six months with the firm he obtained employment with Olnhausen & Crawford, a pioneer steel manufacturing company, and remained with them until the outbreak of the Civil War, when he enlisted as a private in Company M, 102nd Pennsylvania Volunteers. Early in his service he was promoted to the rank of sergeant-major. On July 2, 1863, he was commissioned a second lieutenant and on Sept. 2, 1864, he received his honorable discharge. Returning to Pittsburgh, he rejoined Olnhausen & Crawford and was made a junior member of the firm in 1866. In 1869 he organized the firm of Lewis & Co., predecessor of the McConway & Torley Co. Throughout his business career Mr. McConway took a deep interest in civic, charitabie and philanthropic work and was known not only as a generous financial supporter of worthy charities, but also devoted much of his time to solving the problems arising in charitable work. He was particularly interested in hospital work, and at the time of his death was a director of the Elizabeth Steel Magee Hospital. When the Pittsburgh Board of Education was reorganized he was elected a member. He also served a term in Pittsburgh City Council. He was president of the Allegheny Cemetery, director of the Tuberculosis League and of the Commerce Housing Corporation, and a trustee of Carnegie Institute and the Carnegie Institute of Technology. He was one of the charter members and a former president of the Duquesne Club, a member of the Pittsburgh Athletic Association, the University Club, the Union Club, Pittsburgh Country Club, Engineers' Club of New York, the Loyal Legion and the Americus Republican Club.

WILLIAM LAWRENCE HUMASON, president Humason Mfg. Co., Forestville, Conn., died at his home in Grove Hill, New Britain, Conn., Aug. 2. Born in 1853 in New Britain, where he had always lived, he completed his early education in the public schools and at Williston Seminary, from which he entered Harvard University in 1873. Upon leaving college he joined his father in the management of the Humason & Beckley Mfg. Co., of which he became president as successor to his father. After the company was acquired by the Landers, Frary & Clark Co., Mr. Humason gained controlling interest in the Peck & Young Mfg. Co., later incorporated as the Humason Mfg. Co.

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P. F. HOGAN, president Hogan & Son, Steel, Inc., 373 Pearl Street, New York, died suddenly on July 30, while at Gananoque, Ontario, Canada.

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WILLIAM O. DUNTLEY, formerly president Chicago Pneumatic Tool Co., and latterly head of the W. O. Duntley Co., Chicago, died in that city July 27 at the age of 58.

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JOHN J. HAYES, member of the firm of J. J. Ryan & Co., brass founders, Chicago, died at his home in that city on July 28.

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CARL A. METHFESSEL, manager of sales, eastern district, for the Duff Mfg. Co., Pittsburgh, died of heart trouble, July 22, at his home in Ridgefield Park, N. J. Mr. Methfessel was 48 years of age and had been associated with the Duff company 15 years. He was previously connected with the Delaware, Lackawanna & Western Railroad. He was a veteran of the Spanish-American War, having served under Admiral Dewey on the Olympia in the battle of Manila Bay.

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AMOS NELSON WHITELEY, for many years associated with his brother in the manufacture of reapers, at Springfield, Ohio, died in Muncie Ind., Aug. 3, aged 86 years. Early in his career he learned the machinist trade, subsequently becoming a business associate of his brother, William N. Whiteley, who invented the Champion reaper. For many years the Whiteley Malleable Castings Co. was one of the notable industrial establishments of Muncie.

NEW TRADE PUBLICATIONS

Ash and Soot Disposal.—Conveyors Corporation of America, 326 West Madison Street, Chicago. Description of an installation at the Milwaukee sewerage plant, in which four 800-hp. boilers are involved. Ashes and soot from daily consumption of 200 tons of coal are disposed of.

Pulley Grinders.—Graham Mfg. Co., Providence, R. I. Circular F describing the company's new Graham pulley grinder, used for finishing the face, or belt surface of metal pulleys, from the rough, after chucking the holes. It is claimed that this machine cuts the time in half for this operation.

Jolt Squeezer.—Adams Co., Dubuque, Iowa. A 4-page circular describing the Adams jolt squeezer, portable type, built to handle light and medium classes of foundry work. This machine is said to be especially adapted to jobbing foundries because of its freedom from complicated adjustments, permitting the changing from one job to another with a minimum of effort.

Cork.—Cork Foundation Co., 315 Fifth Avenue, New York. A 4-page circular setting forth the advantages of cork for the absorption of vibration. Uses of cork as a part of the foundation for machines of various types are illustrated and described.

Blowers.—Connersville Blower Co., Connersville, Ind. Bulletin No. 23A describing the Connersville "Boston type" blowers in medium capacity for operating pressures of 3 to 10 lb. per sq. in.

Hot Dip Galvanizing.—Diamond Expansion Bolt Co., 90 West Street, New York. Bulletin No. 152 describes the company's new process for hot dip galvanizing. It is claimed that this process gives an effective coating for iron and steel products to preserve them against destruction by rust and corrosion. By means of this process a coating of zinc is applied to the threads of machine bolts and similar small articles.

Fuel Oil Heater.—Griscom-Russell Co., 90 West Street, New York. Folder of two pages describing a heater for pre-heating fuel oil to provide proper atomization at the burners. Live steam is the heating agent, the oil being circulated through coils within the shell.

Service Bulletin.—The Wyckoff Drawn Steel Co., Frick Building, Pittsburgh, manufacturer of cold-drawn steel. Bulletin of 32 pages, listing all of the standard sizes and shapes in commercial, carbon and alloy steel it produces and the amount of each it was carrying in stock as of that date. This bulletin or stock list is to be issued at regular intervals.

Coal and Ash Handling.—Link-Belt Co., Chicago. Book of 68 pages, describing new methods in boiler houses. Installations of the Peck carrier in the boiler houses of many public buildings are shown, such as the new Tribune Tower in Chicago, and in many industrial plants throughout the United States. Data of interest to engineers and architects are given.

Underfeed Stokers.—Detroit Stoker Co., General Motors Building, Detroit. Bulletin of 32 pages containing a number of fuel bed cross sections showing conditions of the fire with respect to air distribution and movement toward the dumps. One section of the book is devoted to the application of the stoker to both low and high set boilers. Another section shows how twin settings serve very large boilers.

Industrial News Notes

The Shoe Lace Co., Ltd., Providence, R. I., recently organized, has purchased the Joslin Mfg. Co., Providence, woven cotton fabrics, and in addition has acquired patents and machinery of the Matson Lace Tipping Machine Co., 175 Spruce St., Chelsea, Mass. Carl A. Matson will be actively associated with the new company.

The National Acme Co., Cleveland, reports net profits during the three months ending June 30, of $296,420 after deducting interest and depreciation charges. This compares with a net loss of $283,772 in the corresponding period of 1924. Sales for the second quarter were $2,538,368 against $1,650,896 in the corresponding period last year.

The Harley plant, Indian Motocycle Co., East Springfield, Mass., was not sold at auction last week as scheduled because of unsatisfactory bids. Equipment, however, was sold, among the buyers being Moore Drop Forging Co., Storms Drop Forging Co., M. Alport, Springfield, and Billings & Spencer Co., Hartford, Conn. The Harley plant was equipped for drop forging work.

The Northway Motors Corporation, Natick, Mass., within a few years reorganized, has been petitioned into bankruptcy by three creditors, one of the largest of which is the Amalgamated Motors Corporation of New Jersey, which loaned the Northway Motors Co. about $115,000.

A tentative agreement has been reached by the McNab Corporation, Bridgeport, Conn., to lease a section of the former Birdseye-Somers Co., Connecticut Avenue, Bridgeport plant. The McNab Corporation proposes to manufacture Kitchen reversing rudders, having acquired the American rights. Initial work will be confined to assembling. It is proposed later to produce parts.

Plans for taking over the New Home Sewing Machine Co., Orange, Mass., plant, contemplated by certain creditors, have failed. The Federal Court, Boston, has directed the sale by auction of the entire plant, equipment and assets of the company, which has been operated by a receiver for about two years. It will be sold as a going concern.

Plans are being prepared by the St. Helens Pulp & Paper Co., St. Helens, Ore., for a paper mill there. W. P. Hawley of the Hawley Pulp & Paper Co., Oregon City, Ore., is president of the St. Helens company.

Ward C. Smith has sold his holdings in the Smith & Woodbury Co., shop and mill supply jobber, Second and Pine Streets, Portland, Ore., to William S. Wheeler, formerly with the Crane Co. The name has been changed to the Woodbury & Wheeler Co. No change in policy is contemplated. Sidney F. Woodbury is president and William S. Wheeler vice-president.

The Hershey Metal Products Co. has been organized to do all classes of stamping work, screw machine work and assembling of metal products. It has taken over the business of the Liberty Tool & Machine Co., Derby, Conn., designer and builder of jigs, fixtures, dies, gages and special machinery. E. H. Hershey is president and treasurer.

Page & Ludwick, 1417 Lytton Building, Chicago, has been given the exclusive sales agency in the Chicago district, including Illinois, Indiana and Wisconsin, for the Frontier Bronze Corporation, Niagara Falls, N. Y., manufacturer of titanium aluminum and other bronze castings.

Charles Lehrer, New York, operating a cabinet works at 866 Washington Street, has acquired a five-story building at Washington and Beach Streets, heretofore owned by the Hills Brothers Co., and will remove to this location.

The Cities Service Co., 60 Wall Street, New York, has plans under way for the construction of two pipe lines, with compressor stations, etc., for its natural gas subsidiaries in the mid-continent field, estimated to cost $2,000,000. The lines will extend from Wichita to Kaye County, Kan., 69 miles, and from Cambridge to Petrolia, Kan., 72 miles.

Grant Morrison, for several years secretary, treasurer and manager of the Bay City Iron Co., has bought from Benjamin Stout and J. R. Stout their interest in the company. Organized in 1868, the company formerly made machinery and propellor wheels for ships, but recently specialized in beet sugar making apparatus. Mr. Morrison, now practically sole owner, was first employed in 1888. A year later he organized the Bay City Boiler Co. which was merged with the Bay City Iron Co. in 1912. The new officers are: Mr. Morrison, president and treasurer; James E. Morrison, vice-president; Carrie Morrison, secretary.

The Southwest Supply Co., with general offices at 1611 Oliver Building, Pittsburgh, recently was organized to do a general business in pipe, couplings and other oil country requirements. John G. Phillips is president and W. D. Reynolds is secretary-treasurer. The company has several district offices with Marvin Thomas in charge at Tulsa, Okla; H. H. Swan at Houston, and C. F. Hallendeck at St. Louis. E. N. Kelly is in charge of the company's Pittsburgh office.

The Perry & Wilson Equipment Co., 163 Kentucky Avenue, Indianapolis, organized as distributor of tractors and industrial equipment, is a continuation of a partnership by that name. The company is distributor in Indiana for the Caterpillar Tractor Co., which represents a merger of the C. L. Best Mfg. Co., San Leandro, Cal., and the Holt Mfg. Co., Stockton, Cal., and Peoria, Ill. The new plan covers distribution of all types of contractors' equipment. B. I. Perry is president.

Machinery Markets and News of the Works

WEST IS OPTIMISTIC

Chicago Machine Tool Trade Regards Outlook as Best Since War

Automobile Companies at Detroit Make Fair-Sized Purchases—Lehigh Valley Railroad Inquiries

INTEREST in machine tool equipment is becoming more widespread, particularly in the Middle West. Dodge Brothers, Inc., and the Oakland Motor Car Co. have purchased fair-sized lots of tools and indications are that other automobile companies will be active buyers very soon, although there are few inquiries before the trade at the moment. At Chicago the outlook is particularly encouraging, and some of the most optimistically inclined regard the outlook as the most promising since the war. This optimism does not extend to all sections. New England, for example, having had several very dull months, sees very little to offer encouragement.

Railroad buying continues in a moderate way. The Lehigh Valley Railroad has issued an inquiry for 12 to 15 tools, but no appropriation has yet been authorized for their purchase. An extensive list will be sent out soon by the Illinois Central for its Paducah, Ky., shops. The Missouri Pacific has closed for a list of miscellaneous tools and the Wabash and Chicago, Milwaukee & St. Paul are expected to take early action on pending lists. The Union Pacific has inquired for a few machines. The Chesapeake & Ohio is about to build new shops at Huntington, W. Va., for which machine tools will probably be required.

The Chicago Board of Education is in the market for several machine tools, a list of woodworking machines and three lists of sheet metal working machines for various schools.

New York

NEW YORK, Aug. 4.

JULY machine tool business was fairly satisfactory in some lines, and the general report is that it was about all that could have been expected in mid-summer. The outlook appears fairly encouraging. Some export business is in sight, including prospective purchases by one or two automobile companies abroad whose production departments are emulating American methods. The Lehigh Valley Railroad is asking for prices on 12 or 15 tools, but the purchasing department advises THE IRON AGE that no appropriation has yet been made. Included in the list are two 24-in. vertical turret lathes, an 18-in. x 8-ft. engine lathe, a ½-in. to 2-in turret lathe, a No. 1-B Foster universal turret lathe, a No. 5 plain milling machine, two radial drilling machines, two automatic drill pointers, a Sellers tool grinder and a Diamond swing-frame grinder. The Wood Newspaper Machinery Corporation, Plainfield, N. J., has bought a 42 x 42-in. x 12-ft. planer. The Spicer Mfg. Corporation at South Plainfield, N. J., has bought quite a number of machines.

The Liberty Mfg. Co., 101 West Forty-second Street, New York, has been incorporated with $25,000 capital stock to manufacture bronze signs, bulletin boards, etc. Operations have been started. It will be in the market from time to time for raw materials. C. F. Ames is president.

The Arcoil Heat Machine Co., 558 Broad Street, Newark, N. J., has been incorporated with $10,000 capital stock to manufacture heating devices. Work will be done by contracts which are yet to be placed. I. D. Lester is one of the principals.

The American Taximeter Co., 16 West Sixty-first Street, New York, recently incorporated, plans to manufacture recording instruments. Nothing definite has been decided in the matter of manufacturing. R. L. Hubler is president.

The James Ferry Co., Inc., Atlantic City, N. J., is in the market for a second-hand three-drum electric hoist with 75-hp. alternating current motor, 220 volts.

The Sufra Locknut Co. has been organized to manufacture locknuts made by a European firm. It is interested in making manufacturing arrangements with a plant equipped for such work. Address A. L. Van Ameringen, secretary, 30 Irving Place, New York.

The Kay Mfg. Co., 500 Driggs Avenue, Brooklyn, manufacturer of steel springs and other metal products, has leased three buildings at the foot of Warren Street, Baltic Terminal, totaling 170,000 sq. ft. of floor space. The structures will be remodeled for a new plant and the present works removed to the new location.

D. G. Ludins, 1349 Jerome Avenue, New York, and associates plan the erection of a three-story automobile service, repair and garage building, 125 x 200 ft., on Mott Avenue, to cost about $400,000 with equipment.

John Coughlin, Brooklyn, operating a metal smelting and refining plant at Hicks and Lorraine Streets, will build a one-story addition, 60 x 100 ft., to cost about $21,000, for which a general contract has been awarded to James Leone, 400 Union Street.

The Standard Oil Co. of New York, 26 Broadway, New York, has awarded a general contract to the Aberthaw Construction Co., Boston, for a three-story storage and distributing plant, 100 x 200 ft., at Albany, N. Y., to cost approximately $200,000 with equipment. Other expansion is said to be planned at this works.

The Keystone Equipment Co., 1947 Broadway, New York, has inquiries out for two locomotive cranes, 10 to 15 tons capacity each, standard gage, four to eight wheels.

The Rubel Coal & Ice Corporation, 192 Glenmore Avenue, Brooklyn, will soon take bids for a one-story ice-manufacturing plant at Second and Ninety-seventh Streets, Queens, 100 x 300 ft., estimated to cost $425,000 with machinery. E. M. Adelsohn, 350 Stone Avenue, Brooklyn, is architect.

The Hudson River & Port Chester Railroad Co., Port Chester, N. Y., has taken out a permit to construct a one-story car repair shop, 150 x 377 ft., at its Van Nest Avenue yards, Bronx, to cost about $265,000 with equipment.

Rotholz & Stillman, 311 Lenox Avenue, New York, architects, have completed plans for a five-story automobile service, repair and garage building, 100 x 124 ft., at 315-23 West Sixty-ninth Street, to cost approximately $250,000 with equipment.

The Uppercu Cadillac Corporation, 1881 Broadway, New York, representative for the Cadillac automobile, has superstructure work under way on a proposed seven-story service, repair and maintenance building at Atlantic Avenue and Adelphi Street, Brooklyn, 132 x 180 ft., to cost more than $500,000 with equipment. Inglis M. Uppercu is president.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until Aug. 18, for 14

chain hoists for the South Brooklyn Navy Yard, schedule 4116.

A new plant for the manufacture of radio equipment, cabinets and accessories will be established in the recently completed factory buildings at Barnwell and Albion Streets, Elmhurst, L. I., by a company whose name is temporarily withheld. The Roman-Callman Co., Bridge Plaza, Long Island City, real estate, has sold the property to the interest noted and has information regarding the project.

The Public Service Cup Co., 167 Forty-first Street, Brooklyn, manufacturer of paper drinking cups, etc., has leased additional space in the buildings now occupied, totaling 10,-910 sq. ft., for extensions.

C. H. Lench, 373 Fourth Avenue, New York, architect, has filed plans for a three-story automobile service, repair and garage building, 102 x 125 ft., to cost about $150,000 with equipment.

Work will soon begin on a power plant at the new factory at Dobbs Ferry, N. Y., for the Methodist Book Concern, 150 Fifth Avenue, New York, for which a general contract has been let to the United Fireproofing Co., 8 West Fortieth Street. The entire project will cost $650,000. Visscher & Burley, 363 Lexington Avenue, are architects.

Fire, July 24, damaged a portion of the machinery and fixtures at the works of the Auto Novelty Mfg. Co., 1089 Atlantic Avenue, Brooklyn, manufacturer of automobile bumpers and kindred products. An official estimate of loss has not been announced.

The Cramer & King Co., East Thirty-third Street, Paterson, N. J., has plans for a one-story power house at its textile print works, to be 40 x 61 ft., estimated to cost $37,000.

William W. Huselton, 43 Cedar Street, New York, and associates have organized a company to manufacture electric batteries. The former mill of the Smith Tire & Rubber Co., Garfield, N. J., recently sold at a public auction, has been acquired by the new company which will be capitalized at $2,500,000. Mr. Huselton will be vice-president and treasurer of the organization.

The Palmolive Co., 360 North Michigan Avenue, Chicago, manufacturer of soaps, etc., with main plant at Milwaukee, has plans under way for a one-story oil-handling and distributing plant at its branch works at Edgewater, N. J., to include loading and unloading equipment, conveying apparatus, pumping machinery, etc., estimated to cost $185,000. Lockwood, Greene & Co., 400 North Michigan Avenue, Chicago, are architects and engineers.

The Perth Amboy Auto Body Co., 564 Laurie Street, Perth Amboy, N. J., will use a portion of a new one and three-story building, 49 x 168 ft., which it will erect for expansion. Godfrey M. Ricci, 133 Smith Street, is architect.

The Board of Education, Montclair, N. J., is said to be planning the installation of manual training equipment in its proposed two-story George Innes high school estimated to cost $500,000, for which it is expected to ask bids on general contract during the present month. Starrett & Van Vleck, 8 West Fortieth Street, New York, are architects.

Officials of the Submarine Boat Corporation, Port Newark, Newark, N. J., have formed the Electric Boat Co., to take over and expand the ship construction and repair operations of the company. The Submarine company will continue in other branches of activity, including the operation of boat line.

New England

BOSTON, Aug. 3.

THE machine tool market continues quiet with sales for the past week largely confined to small bench equipment. Two local houses see some improvement in inquiries, but it is very slight. The equipment of the Stanley Motor Carriage Co., Newton, Mass. has been sold at auction. Attendance by machinery dealers was slim, while equipment users were in goodly number. Small tools continue to sell well and machine parts also are in demand.

Sargent & Co., Water Street, New Haven, Conn., builders' hardware, have started the erection of a machine shop. Westcott & Mapes, 139 Orange Street, are the architects.

William Drummey, 80 Boylston Street, Boston, is preparing plans for a garage, machine shop and storage building to be erected in the Dorchester district. The owner's name is temporarily withheld.

The Realty Development Corporation, care of the National Light & Power Co., 111 Broadway, New York has closed bids for a hydroelectric development at Hillsboro, N. H., to be known as the Jackson development. Vaughan Engineers, 185 Devonshire Street, Boston, have the plans.

The Continental Wood Screw Co., Mount Pleasant Street, New Bedford, Mass., has temporarily held up construction of a plant addition.

Plans are out for a proposed one-story and basement, 60 x 125 ft. machine shop to be erected in the Charlestown district, Boston, for the Board of Education. George S. McLaughlin, 80 Boylston Street, Boston, is the architect.

The James Russell Boiler Works Co., Dewar Street, Dorchester, Mass., has awarded a general contract to the Fuller Construction Co., 31 Milk Street, Boston, for a one-story addition to cost about $42,000.

The Salisbury Iron Co., Lime Rock, Conn., is considering the early rebuilding of the portion of its main foundry and machine shop destroyed by fire, July 25, with loss of $50,-000 including equipment.

The New England Power Co., Worcester, Mass., will soon begin work on its hydroelectric power development on the Deerfield River, near Monroe Bridge, Mass., with the construction of an automatic hydroelectric generating station. A transmission line will be built.

Gordon Brothers, Inc., Scitico, Conn., paper manufacturer, has acquired the local plant of J. D. Stowe & Sons for extensions.

The Builders' Steel Co., Windsor Street, Hartford, Conn., has filed plans for a one-story steel fabricating shop, 50 x 61 ft.

A power plant equipped to use oil fuel will be constructed by the Ford Motor Co., Detroit, at its proposed assembling works at East Somerville, Mass. Bids have been taken for a main assembling building, one-story, 300 x 1100 ft. Albert Kahn, Marquette Building, Detroit, is architect.

Katz Brothers, Hartford, Conn., has filed plans for a one-story machine and automobile repair shop to cost approximately $17,000.

The National Type Foundry Co., Bridgeport, Conn., has acquired the plant of the Mosel Mfg. Co., Kensington, Conn., manufacturer of chucks, etc., and will remodel for a branch works. It is expected to begin operations early in the fall.

The Daniel E. Cummings Co., Skowhegan, Me., plans the construction of a one-story steam power house at a local shoddy mill, comprising the plant of the Maine Spinning Co., recently acquired, and now being remodeled.

Superstructure work is in progress on the six-story addition to the plant of the Eagle Lock Co., Terryville, Conn., 65 x 250 ft.

Buffalo

BUFFALO, Aug. 3.

A GENERAL contract has been awarded by the Union Carbide Co., Niagara Falls, N. Y., to Wright & Kremer, local, for a one-story addition, 75x120 ft., to be used as a furnace department. It will cost about $30,000. Headquarters of the company are at 30 East Forty-second Street, New York.

The Ramp Buildings Corporation, 21 East Fortieth Street, New York, has secured an option on property at Broad and Exchange Streets, Rochester, N. Y., and plans the erection of a six-story automobile service, repair and garage building to cost about $700,000. The company contemplates building two other such structures in the city.

The Syracuse Fire Door Corporation, Canal Street, Syracuse, is said to be planning for the installation of additional equipment, including a power shear.

The Board of Trustees, Philadelphia, N. Y., has plans for the construction of a municipal electric light and power plant to cost $35,000 with equipment. W. T. Field, Watertown, N. Y., is consulting engineer.

The Buffalo Sash Weight & Foundry Co., 395 Fillmore Avenue, Buffalo, has made application for permission to use property on North Division Street, between Emslie and Lord Streets, for proposed extensions.

Lewis & Hill, 892 Main Street, Buffalo, architects, have taken out a permit to erect a two-story auomobile service, repair and garage building, 80 x 120 f., at Lockport, N. Y., to cost about $40,000 with equipment.

The American La France Fire Engine Co., Elmira, N. Y., will build a one-story plant at Sixteenth and Shotwell Streets, San Francisco, for assembling and other service, to cost about $25,000. Arthur Bugbee, 14 Montgomery Street, San Francisco, is architect.

Fire, July 31, destroyed the foundry and rolling mill of the J. B. Wise Co., Watertown, N. Y., entailing a loss of $150,000 to plant and equipment.

The Dahlstrom Metallic Door Co., East Second and Buffalo Streets, Jamestown, N. Y., has awarded a general contract to the Charles C. Haas Construction Co., local, for a four-story brick and steel administration building.

The Crane Market

INQUIRY is slack in the field of overhead cranes, but a fair volume of inquiries for locomotive cranes is reported. The Phoenix Utility Co., 71 Broadway, New York, is about to close on the two 5-ton single I beam electric cranes for which it has been in the market for several weeks and is taking bids, expecting to close shortly, on two 5-ton, single I beam hand power cranes for low headroom. The Lehigh Valley Railroad is in the market for a 10-ton overhead crane and still has a 35-ton gantry crane pending.

Among recent purchases are:

H. R. Beebe, Inc., Utica, N. Y., a 10-ton, steam driven, crawl tread locomotive crane, 45-ft. boom, from the Industrial Works.

Southern Pulp & Naval Stores Co., Dublin, Tenn., a 20-ton used Brownhoist locomotive crane, with 1½-cu. yd. Hayward bucket, from Philip T. King, New York.

Universal Portland Cement Co., Chicago, a standard locomotive crane from the American Hoist & Derrick Co.

Thurston Contracting Co., Detroit, two 30-ton locomotive cranes from the American Hoist & Derrick Co.

Republic Creosoting Co., Indianapolis, a 10-ton crawl tread locomotive crane from the American Hoist & Derrick Co.

Loizeaux Sand & Gravel Co., Elizabeth, N. J., a 15-ton locomotive crane from the Browning Crane Co.

Carnegie Steel Co., Pittsburgh, a 15-ton, 66-ft. 8-in. span magnet handling crane for the bloom yard at Duquesne works, from the Alliance Machine Co.

Hubbard Steel Foundry, East Chicago, Ind., a 5-ton, 41-ft. 3-motor traveling crane through Page & Ludwick, from Milwaukee Electric Crane & Mfg. Co.

Bessemer Gas Engine Co., Grove City, Pa., a 40-ton 4-motor electric traveling crane, a 15-ton 3-motor traveling crane, a 4-ton hand power crane with one motor hoist from a Milwaukee builder.

Chicago

CHICAGO, Aug. 3.

AMONG Chicago machine tool houses, July sales were not as heavy as those for June, but nevertheless market developments during the month were by no means discouraging. On the contrary, interest in equipment is steadily becoming more widespread and scattered orders from industrial companies now form a considerable aggregate. Those in the trade who are optimistically inclined, regard the outlook as the most promising since the war. Machine tool manufacturers are again on a satisfactory production basis and a few are very busy, among them a Western milling machine manufacturer which is so heavily committed that it has fallen behind on deliveries.

There is still considerable railroad buying to be done. An extensive list will be issued by the Illinois Central for its Paducah, Ky., shops, but as yet no definite word has been received as to when inquiries will be put out. The Missouri Pacific has closed for miscellaneous tools, including a 54-in. wheel lathe, a large combination punch and shear, a heavy duty drill press, a 7-ft. vertical boring mill, and a large slab milling machine. The Wabash is also expected to take early action on an extensive list. The Union Pacific System is inquiring for a 2-ft. radial drill, an 18-in. engine lathe, and a double emery grinder with 12-in. wheels, all of which are to be motor driven. Action on the Chicago, Milwaukee & St. Paul list is expected early this month.

The Chicago Board of Education has entered the market for 10 12-in. x 4-ft. motor head speed lathes with variable speed motors for the Tilden technical high school, a list of wood-working machinery for the Washburn continuation school, and three identical sheet metal machinery lists of 52 items each for the Kelvyn Park junior high school, Stockton junior high school and the Farragut junior high school. The city of Chicago is inquiring for a 20-in. drill and a power hack saw for its repair shops. The Board of Education of Muskegon, Mich., has closed for a universal milling machine for a continuation school. The Yellow Sleeve Valve Mfg. Co., East Moline, Ill., recently purchased a number of miscellaneous machine tools. The Ingalls-Shepard Division of the Wyman-Gordon Co., Chicago, has placed an order for a 5-ft. radial drill. The Bendix Corporation, South Bend, Ill., placed an order for a vertical milling machine. The Koehring Co., Milwaukee, bought a 5-ft. radial drill. The Bucyrus Co., South Milwaukee, Wis., has issued a fair sized list of miscellaneous equipment on behalf of one of its customers.

The Union Tank Car Co., a subsidiary of the Standard Oil Co. of Indiana, is constructing a new plant in Robertsdale, near Whiting, Ind., comprising a machine shop, foundry, power plant, wheel shop and other units, involving a total cost of $2,000,000.

The Acme Oxygen Co., West Pershing Road and South Racine Avenue, Chicago, has purchased five acres at Railroad Avenue and 152nd Street, East Chicago, Ind., and will construct a plant for the manufacture of oxygen for commercial purposes.

The Northern Indiana Gas & Electric Co., Hammond, Ind., has plans for a one-story repair shop to cost $37,000 with equipment.

The Commonwealth Edison Co., 72 West Adams Street, Chicago, has awarded a contract for a one-story power station at 3501 South Crawford Avenue to cost $238,000 and for a one-story substation, 53 x 60 ft., at 1500-10 West 123rd Place, to cost $50,000.

The H. D. Conkey Co., Mendota, Ill., the factory of which was recently partially destroyed by fire, is preparing plans for a new unit.

The Speeder Machinery Co., Fairfield, Iowa, manufacturer of gasoline driven shovels and cranes, has started erection of an addition, 33 x 60 ft.

The McGill Lithographing Co., 700 South Sixth Street, Minneapolis, has begun the construction of a two-story addition, to cost $75,000.

The Blue Valley Brass Foundry & Pattern Works, a newly organized company, Kansas City, Mo., has bought a site, 50 x 135 ft., at the corner of Twelfth Street and Bristol Avenue, and has begun excavation for a one-story plant, 50 x 100 ft. A general line of brass and aluminum castings and metal and wood patterns will be manufactured. A group including John F. Redman and Joseph T. Westwood will be actively in charge of the plant.

The Anderson-Pitt Corporation, Kansas City, Mo., recently organized to manufacture a new type of electric reflector heaters, has moved from a temporary location in the Coca-Cola Building to the third floor of a building at 2609 Walnut Street, where 3000 sq. ft. of floor space have been leased and machinery has been installed for assembling the company's products.

The Diversey Foundry Co., Geneva, Ill., is erecting a plant addition.

The Inland Coal & Dock Co., Duluth, Minn., has awarded a contract for a machine shop to cost $17,000.

The Alton Automobile Co., Alton, Ill., has revised plans for a two-story service, repair and garage building 80 x 100 ft., to cost $45,000. L. Pfeiffenberger's Sons, 102 West Third Street, are architects.

The Wylie & Wilson Cooperage Co., Granite City, Ill., is considering rebuilding the portion of its plant destroyed by fire July 25, with loss reported at $100,000 including equipment.

The Central Public Service Co., Springfield, Ill., is disposing of a bond issue of $700,000, a portion of the proceeds to be used for extensions and improvements in power plants and system.

The Four-Drive Tractor Co., Waukegan, Ill., is said to be planning the erection of a new plant to cost $35,000 with equipment. V. A. Van Horn, 949 Maple Street, is general manager.

Pickands, Mather & Co., Sellwood Building, Duluth, Minn., with headquarters at Cleveland, have awarded a general contract to H. E. Farnum & Co., Builders' Exchange, for a one-story mechanical shop building at its ore properties at Bovey, Minn.

The Ostrander-Seymour Co., 7 South Dearborn Street, Chicago, manufacturer of printers' machinery will soon ask bids for a two-story addition at Fifty-fourth Avenue and Nineteenth Street, Cicero, to cost $150,000. J. G. Ostrander is president.

Fire, July 24, destroyed a portion of the plant of the Alton Boxboard & Paper Co., Alton, Ill., with loss estimated at $150,000 including equipment. Plans for rebuilding are under consideration.

The Standard Oil Co. of Indiana, 14½ First Avenue, Mason City, Iowa, will soon take bids for a one-story machine shop and automobile service, repair and garage building to cost about $75,000 with equipment. Schlinz & Bailey,

Monadnock Building, Chicago, are engineers. R. H. Thomas is local manager.

The Missouri-Pacific Railroad Co., St. Louis, has awarded a general contract to J. A. Moss, 608 South Dearborn Street, Chicago, for a one-story machine shop at Bush, Ill., estimated to cost $30,000. An engine house will also be built, contract for which has been let to the Hirsch Construction Co., Wainwright Building, St. Louis.

The Sandusky Cooperage & Lumber Co., East St. Louis, Ill., has tentative plans under consideration for the rebuilding of the portion of its works at Trendlay Avenue and Thirty-fourth Street, destroyed by fire July 18, with loss of about $75,000 with equipment.

The Illinois Public Utility Co., Lincoln, Ill., is disposing of a note issue of $1,800,000, a portion of the proceeds to be used for extensions in power plants and system.

The J. E. Hollarbush Machine Co., corner Third Street and Lawn Ridge Avenue, Huron, S. D., recently was incorporated as rebuilder of automobile, truck and tractor motors and to manufacture automotive parts. It is now in operation. J. E. Hollarbush is one of the principals.

The International Harvester Co., Purchasing Department, 606 South Michigan Avenue, Chicago, is inquiring for an electric driven air compressor with approximately 3000 cu. ft. displacement.

Philadelphia

PHILADELPHIA, Aug. 3.

CLIFTON B. DRAKE, 23 North Tenth Street, Philadelphia, engineer, has concluded negotiations for the purchase of the plant and business of the Butterfield Engine Co., Inc., Wildwood, N. J., operated under receivership for a number of months. The new owner plans to continue operations, specializing in the production of marine engines and parts.

The Collings Carriage Co., Race and Twenty-second Streets, Philadelphia, manufacturer of automobile bodies with main works at Camden, N. J., has awarded a general contract to Turnbull & Cornell, 15 South Twenty-first Street, for extensions and betterments.

W. H. Taylor, 2220 Mount Vernon Street, Philadelphia, has filed plans for a one-story machine shop at 1506-8 Cambridge Street.

The Certainteed Products Co., Second Street and Erie Avenue, Philadelphia, manufacturer of roofing, etc., has taken bids on a general contract for a one-story addition, 48 x 150 ft., estimated to cost $35,000. Stofflett & Tillotson, Wesley Building, are architects.

Himmelein & Bailey, Inc., 246 Chestnut Street, Philadelphia, manufacturer of mechanical belting, has leased a portion of a factory on Pine Street, Camden, N. J., for a branch plant. It has also acquired property on Haddon Avenue, near the White Horse Pike, vicinity of Camden, and will later build a new plant here.

The Philadelphia & Reading Co., Reading Terminal, Philadelphia, will make extensions in its ore-handling plant at Pier 14, Port Richmond, to include the installation of additional machinery to double the present capacity. It is estimated to cost $1,000,000.

Fire, July 27, destroyed a portion of the plant of the Camden Paper Co., Camden, N. J., with loss estimated at $25,000 including equipment. It is planned to rebuild.

The Gill Glass Co., Amber and Venango Streets, Philadelphia, has awarded a general contract to William R. Dougherty, 1608 Sansom Street, for an addition to cost about $36,000.

The Borough Council, Emaus, Pa., will take bids immediately for a new pumping plant in connection with a proposed municipal waterworks. The equipment will be electrically-operated with capacity for furnishing 1,000,000 gal. per 24 hr. An electric power station, with Diesel oil engine and generator, will also be installed. R. S. Stoneback is borough secretary, in charge.

The Hazard Mfg. Co., Wilkes-Barre, Pa., manufacturer of wire rope and cable, has plans in preparation for an addition to cost in excess of $50,000 with equipment. MacCormack & French, Wilkes-Barre, are architects.

The Abington Township School Board, Abington, Pa., plans the installation of manual training equipment in a proposed two-story high school, estimated to cost $200,000. Heacock & Hokanson, 1211 Chestnut Street, Philadelphia, are architects. J. Oliver Potts, Glenside, Pa., is chairman.

The W. C. Hamilton Paper Co., Miquon, Pa., is arranging for the electrification of its mill and will install new equipment to replace present steam-driven apparatus. The company will arrange for its own power station, including a steam turbo-generator and accessory apparatus.

The Dough & Stewart Co., Mount Pleasant, Pa., has plans for a one-story glass-cutting plant, with machinery for beveling, etc., 60 x 170 ft., estimated to cost $45,000 with equipment.

The Steam Vehicle Corporation of America, Newton, Mass., has concluded negotiations with the Bethlehem Motors Corporation, Allentown, Pa., manufacturer of automobile trucks, for a lease of Building F, for the manufacture of steam-propelled trucks and automobiles. Equipment heretofore used at the Newton plant will be removed to the new location. It is expected to give employment to about 200 for initial production. The Bethlehem company will continue manufacture as heretofore. J. E. Gramlich is general manager of the Steam Vehicle organization.

The John Wood Mfg. Co., Conshohocken, Pa., manufacturer of range boilers and kindred products, has acquired about 2½ acres at Chicago, improved with factory buildings, and will remove the plant of the Wolff Mfg. Co., Chicago, a subsidiary, manufacturer of sanitary fixtures, etc., to the new location. David Ramsey, Jr., heretofore connected with the Conshohocken works, will be general manager at the new works.

Fire, July 29, destroyed a portion of the Whip-o-Will colliery of the Archbald Coal Co., Archbald, Pa., including coal breaker and other apparatus. The loss is estimated at $100,000 with equipment. Plans for rebuilding are being considered.

M. M. Walter, supervisor of industrial education, Bethlehem, Pa., has completed the erection of an addition to the Bethlehem Public Trade School, East Fourth Street, and plans the early installation of equipment for instruction in automobile repairs, parts, assembling, etc.

The Patterson Screen Co., Towanda, Pa., has been organized to manufacture metal screens used in X-ray work. It has an equipped plant now in operation. C. D. Patterson heads the company.

The Roberts & Mander Stove Co., Hatboro, Pa., has awarded contract to the Beling-Bush Co., Inc., Philadelphia, for two two-story buildings, 60 x 140 ft., and 35 x 65 ft., respectively.

Cincinnati

CINCINNATI, Aug. 3.

JULY proved to be a good month for many local machine tool builders and was second only to June for volume of business in 1925. Somewhat of a lull in sales has marked the past week. This is attributed principally to the fact that many executives responsible for purchases are absent from their desks. Purchases consist almost entirely of single machines, although here and there an order for several machines is being received. Local builders are anticipating liberal buying by the electrical industry in the early fall. Railroads are limiting their orders to a few necessary machines for replacement purposes. The automotive industry is the most productive field at present.

Inquiries for planers are fair, but sales have lagged for several weeks. A turret lathe manufacturer has booked several orders from electrical equipment manufacturers. A large builder of boring mills states that July turned out to be the best month of the year in volume of sales. The most encouraging feature was the fact that the orders were well distributed throughout the general industrial field. Milling machine production is being maintained on an extensive scale with the automotive manufacturers providing the bulk of the business. Lathe manufacturers report that operations are restricted, except in the case of several builders who are now working on railroad orders booked recently. Sales of drills have fallen off somewhat in the past two weeks. Demand for shapers is fair.

The Delco Light Co., Dayton, Ohio, subsidiary of General Motors Corporation, will expend $2,000,000 for additions to present buildings and for new equipment.

The Inland Mfg. Co., Dayton, Ohio, manufacturer of steering wheel locks and other automotive equipment, is said to be considering a two-story addition to its plant on Coleman Avenue. H. E. Talbott, Jr., is president.

The Board of Education, Vermilion, Ohio, plans the installation of manual training equipment in its proposed two-story high school estimated to cost $200,000, for which plans will be drawn by Walker & Norwick, American Bank Building, Dayton, Ohio, architects. K. A. Nylen, 106 Thirteenth Street, Columbus, Ohio, is engineer.

The Lenoir Car Works, Inc., Lenoir City, Tenn., manufacturer of railroad cars, contemplates rebuilding the portion of its plant destroyed by fire July 22, with loss reported at close to $400,000 with equipment. A foundry and wood-working shop were saved.

The Mills Equipment Co., Chattanooga, Tenn., machinery dealer, has inquiries out for a wheel press, about 250 tons capacity, motor-driven or hand-power.

C. W. Brickley, Brook and Bloom Streets, Louisville, operating a lumber mill, has acquired a 2-acre tract at Gaulbert and Floyd Streets, and plans the erection of a new mill to cost approximately $100,000 with machinery.

Manual training equipment will be installed in the three-story junior high school to be erected at New Philadelphia, Ohio, estimated to cost $375,000, for which bids are being asked on a general contract until Aug. 12. Walker & Norwick, American Bank Building, Dayton, Ohio, are architects. K. A. Nylen, 106 Thirteenth Street, Columbus, Ohio, is mechanical engineer.

The L. J. Breed Equipment Co., James Building, Chattanooga, Tenn., machinery dealer, has inquiries out for a crawler type steam shovel, ¾-yd. capacity, Erie manufacture, and for one 350-hp. watertube boiler, Babcock & Wilcox type.

The Crane Enamelware Co., Chattanooga, Tenn., a subsidiary of the Crane Co., Chicago, has plans under way for extensions, comprising a one-story foundry and grinding building to cost $175,000 with equipment.

Metzger Brothers, Paducah, Ky., will equip a cold storage plant in connection with their proposed packing house to cost $70,000 with equipment. Electric-operated packing house machinery will also be installed.

The Common Council, Bluff City, Tenn., is considering the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks estimated to cost $50,000. Bonds in this amount have been approved.

The Eastern Ohio Gas Co., Dennison, Ohio, has plans for a one-story repair shop to cost about $20,000. C. J. Marr, 317 North Broadway, New Philadelphia, Ohio, is architect.

The Northern Garage Co., Nashville, Tenn., will soon begin the erection of a three-story service, repair and garage building 100 x 150 ft., to cost $65,000 with equipment.

The Casey Boiler Works, Springfield, Ohio, is in the market for a used bending roll, 4 to 6 ft. between housings, with capacity to bend ¼-in. plate.

Detroit

DETROIT, Aug. 3.

SCHWARTZ BROTHERS & CO., Cheybogan, Mich., are rebuilding their plant recently partially destroyed by fire, with loss reported close to $50,000 with equipment. The company specializes in the manufacture of snow plows and kindred equipment.

The Wolverine Tube Co., 1411 Central Avenue, Detroit, manufacturer of brass and copper tubing, etc., has plans for a one-story addition, 60 x 200 ft., for which bids will be taken on general contract at once. Carey & Esselstyn, Hoffman Building, are architects. C. C. Limbocker is president.

The Wilson Foundry & Machine Co., Pontiac, Mich., a subsidiary of the Willys-Overland Co., Toledo, Ohio, has concluded negotiations for the purchase of the plant of the Michigan Drop Forge Co., occupying an adjoining site, for expansion. The acquisition includes equipment at the plant, which has been idle for about a year.

The Grand Rapids Turning Co., Grand Rapids, Mich., recently organized, will take over the local factory and business of the Grand Rapids Wood Turning Co. Plans are said to be under consideration for expansion. Peter Lass is president.

The Ford Motor Co., Detroit, has awarded a general contract to the Walbridge-Aldinger Co., Penobscot Building, for a one-story addition, 200 x 315 ft., to its Dearborn plant. Albert Kahn, Inc., Marquette Building, is architect.

The Antrim Iron Co., Grand Rapids, Mich., is considering plans for enlargements in its works at Mancelona, Mich., including additional equipment.

The Monroe Auto Equipment Mfg. Co., Monroe, Mich., will soon begin the erection of a one-story foundry, 60 x 65 ft.

The Boyne City Portland Cement Co., Boyne City, Mich., W. H. White, president, is said to be arranging plans for a local cement mill and will begin construction in a few months. The main unit will include a power house and machine shop, and is expected to cost more than $600,000.

The Carroll Steel Foundry Co., Calumet, Mich., is being organized by local interests to take over the property and business of the former Carroll foundry. The local plant was destroyed by fire a number of weeks ago and the new company will arrange for early rebuilding.

The Board of Education, Springwells, Mich., plans the installation of manual training equipment in its two-story and basement high school estimated to cost $500,000, for which it is expected to ask bids on a general contract in September. H. J. Keough, 3440 Cass Avenue, Detroit, is architect and engineer.

The Shaw-Walker Co., Muskegon, Mich., manufacturer of sectional bookcases, filing cabinets, etc., will soon ask bids for extensions and improvements in its power house, 59 x 98 ft., including the installation of additional equipment, estimated to cost $50,000. The Woodmansee-Davidson Engineering Co., 208 South LaSalle Street, Chicago, is engineer.

The City Council, Augusta, Mich., is considering the installation of pumping equipment in connection with a proposed municipal waterworks, for which bonds for $40,000 have been approved.

The Kysor Heater Co., General Motors Building, Detroit, incorporated with $90,000 capital stock, will manufacture motor car and motor bus heaters. It requires in its product 18 and 20-gage steel, also small amounts of seamless tubing, aluminum and gray iron castings. W. A. Kysor heads the company.

The Brass Weatherstrip Mfg. Co., Detroit, incorporated with $40,000 capital stock, will manufacture a patented attachment for windows. It is interested in receiving quotations on sheet brass. Frank M. Hill is secretary.

The Sauzedde Tool & Wheel Co., Mount Clemens, Mich., has started the construction of an addition, which will add 900 sq. ft. of floor space to the present factory.

The Cooper Steel Spring Co., Mount Clemens, Mich., manufacturer of automobile springs, has purchased a site at Deerfield, where a factory will be erected for the manufacture of a jumper cart, a combined baby cart and jumper, for which the company holds patent rights. The building will be 60 x 120 ft.

St. Louis

ST. LOUIS, Aug. 3.

PROPERTY at Twelfth Street and Bristol Avenue, St. Louis, has been acquired by the Blue Valley Brass Foundry & Pattern Works, Inc., recently organized by John F. Redman and Joseph T. Westwood, St. Louis, as a site for a new one-story plant, 50 x 100 ft.

The Common Council, Barnsdall, Okla., plans the installation of pumping equipment in connection with proposed waterworks extensions and improvements, for which the Holway Engineering Co., Wright Building, Tulsa, Okla., will prepare plans.

The Franklin-Whelan Petroleum Corporation, Springfield, Mo., will erect a new lubricating oil-manufacturing plant to cost close to $60,000 with equipment.

The Sinclair Oil & Gas Co., Sinclair Building, Tulsa, Okla., is completing plans for a new gasoline refinery at Cromwell, Okla., with nine 160-hp. compressors and two 80-hp. compressors and accessory equipment, estimated to cost $500,000 with machinery. L. C. Van Cleave is resident construction superintendent, in charge.

The Southwestern Equipment Co., El Reno, Okla., machinery dealer, has inquiries out for machinery for a complete ice-manufacturing plant, raw water type; also for a horizontal ammonia receiver; and several belt-driven dirt elevators, 6 to 12 in. wide, to travel to 18 ft.

The Danville Light & Power Co., Danville, Ark., plans extensions in its steam-operated electric power house, including the installation of two 150-hp. engines and accessory apparatus. It is also contemplating enlargements in its ice-manufacturing plant.

The City Council, Dewey, Okla., is planning for the installation of additional pumping equipment at the municipal waterworks station estimated to cost $21,000.

Fire, July 25, destroyed a portion of the natural gasoline plant of the Tibbens Gasoline Co., Sapulpa, Okla., with loss estimated at $100,000 with equipment. It is planned to rebuild.

The Southern Ice & Utilities Co., Haileyville, Okla., has tentative plans for an ice-manufacturing plant to cost close to $50,000 with equipment. It is disposing of a preferred stock issue of $3,000,000, a portion of the fund to be used for extensions in its plants in Oklahoma, Texas, Arkansas and Louisiana.

The Anderson-Pitt Corporation, 2609 Walnut Street, Kansas City, Mo., plans the early installation of equipment for the manufacture of special reflector heating equipment.

The Common Council, Gravette, Ark., is considering the installation of additional equipment at the municipal electric light and power house, including a 90-hp. gas engine and accessories.

The Hinderlitter Tool Co., 14 North Madison Street, Tulsa, Okla., manufacturer of oil well equipment, is said to be planning the erection of a branch factory at Blackwell, Okla., to cost approximately $30,000.

Gulf States

BIRMINGHAM, Aug. 3.

THE Middle West Utilities Co., 72 West Adams Street, Chicago, is said to have plans under consideration for a steam-turbo generating plant in the vicinity of Victoria, Tex., estimated to cost $250,000 with equipment. It also contemplates making extensions in its hydroelectric power properties on the Guadalupe River.

The Common Council, Loraine, Tex., plans the installation of pumping machinery in connection with extensions and improvements in the municipal waterworks estimated to cost $30,000. A special election to vote bonds has been called for Aug. 11.

The Coastal Mfg. Co., Panama City, Fla., recently formed with a capital of $50,000, is said to be arranging for the erection of a plant in the vicinity of Millville Junction, near Panama City, for the manufacture of concrete tile and kindred products. Fred T. Bennett, Panama City, heads the company.

The C. L. Capps Co., 1224 East Adams Street, Jacksonville, Fla., is negotiating for property in the Glen Myra section, for the construction of a new plant for the manufacture of iron and other metal castings, to cost close to $40,000 with equipment.

The Florida Motor Marts, Inc., 1101 News Tower, Miami, Fla., recently organized with Harvey White as president, is said to have preliminary plans for the construction of three service, repair and garage buildings on local sites, estimated to cost $650,000 with equipment. R. Kanyon Perry, Atlanta, Ga., is architect.

W. M. Smith & Co., First Avenue, Birmingham, machinery dealers, have inquiries out for a 45-in. magnet, mushroom type; also for a steam shovel, crawler type.

The Moody Gulf Gas Co., Houston, Tex., is completing plans for the construction of a pipe line from the Edna, Refugio and Markham gas fields to Houston, about 160 miles, with installation of compressor and booster stations, estimated to cost $5,000,000.

A power house will be constructed at the proposed new mill at Eufaula, Ala., to be established by the Gloria Underwear Mills, Inc., Reading, Pa., consisting of dyeing, bleaching and other structures, estimated to cost $200,000 with equipment.

The Eastern Texas Electric Co., Beaumont, Tex., is disposing of a note issue of $4,000,000, the proceeds to be used in part for the construction of a proposed steam-operated electric generating plant and the acquisition and expansion of existing properties at Orange, Tex.

The Southwestern Iron & Steel Co., 708 North Main Street, Fort Worth, Tex., has awarded a general contract to A. H. Smith, Harrington Street, for two-story additions, 50 x 100 ft. and 15 x 50 ft.

The American Ice Co., Bessemer, Ala., is contemplating enlargements in its ice and refrigerating plant and the installation of additional equipment.

The Acme Lumber Co., Fort Pierce, Fla., has acquired property in the vicinity of St. Lucie, Fla., as a site for a new plant to manufacture concrete blocks, to cost $75,000 with machinery.

The Gray Artesian Well Co., Pensacola, Fla., plans the installation of pumping equipment in the vicinity of Port Allen, La., reported to cost in excess of $40,000. The installation will be carried out in connection with extensions in waterworks.

The Smith Lumber Co., Sarasota, Fla., is in the market for a high pressure boiler, locomotive or economic type, about 150-hp. capacity, with accessories.

Sanguinet, Staats, Hedrick & Pate, City National Bank Building, Fort Worth, Tex., architects, have completed plans for a three-story automobile service, repair and garage building, 100 x 150 ft., at San Antonio, Tex., to cost $100,000.

Plans have been filed by the Hughes Tool Co., 300 Hughes Street, Houston, Tex., for its proposed one-story plant to cost $45,000 with equipment.

Bids will be received by C. E. Abbott, manager Water Works Commission, Tuscaloosa, Ala., until Aug. 13, for equipment for a municipal waterworks extension, including a high-lift pumping unit with capacity of 2100 gal. per min.; low-lift pumping engine of like capacity, and accessory machinery. Morris Knowles, Inc., Westinghouse Building, Pittsburgh, is engineer.

A power plant and machine shop will be constructed at the proposed mill of the Hashba Textile Co., Dinsmore, Fla., recently organized. A tract of 585 acres has been acquired. The complete plant will cost close to $2,500,000. B. H. Hamilton, Raleigh, N. C., is president.

The Pompano Electric Light & Power Co., Pompano, Fla., plans extensions and improvements in the power house and system to cost about $75,000.

Indiana

INDIANAPOLIS, Aug. 3.

WORK will soon begin on a one-story plant, 100 x 250 ft., at Columbus, Ind., for the Indianapolis Pump & Tube Co., 1600 National City Bank Building, Indianapolis, Quinton G. Noblett, president, reported to cost $45,000 with equipment.

Harry E. Boyle & Co., Furniture Building, Evansville, Ind., architects, have preliminary plans for a four-story and basement automobile service, repair and garage building, 70 x 200 ft., to cost approximately $300,000 with equipment.

The International Harvester Co., Chicago, has plans for a one-story addition to its storage and distributing plant at Tipton, Ind., 65 x 67 ft.

The Board of Education, Greenfield, Ind., plans the installation of manual training equipment in its proposed new high school, estimated to cost $125,000, for which plans have been drawn by Omer P. Gordon, Thayer Building, architect.

The National Tile Co., Anderson, Ind., will erect a two-story addition, 75 x 310 ft., estimated to cost $45,000 with equipment. A general contract has been let to Eshelman & Co., Anderson. John D. Hyde is superintendent.

The Board of City Commissioners, Jasper, Ind., has plans in progress for extension and betterments in the municipal electric power house, to include the installation of new boilers, stokers, and other equipment. Charles Brossman, Merchants' Bank Building, Indianapolis, is engineer.

The Board of School Trustees, Fort Wayne, Ind., plans the installation of manual training equipment in the proposed new North Side high school estimated to cost $750,000, for which it is expected to ask bids on a general contract this month. Charles R. Weatherhogg, 250 West Wayne Street, is architect.

The Vonnegut Hardware Co., 120 East Washington Street, Indianapolis, has plans in progress for a new storage and distributing building to cost $50,000. Vonnegut, Bohn & Mueller, Indiana Trust Building, are architects.

The City Council, Bedford, Ind., will soon ask bids for equipment for two pumping stations for the municipal waterworks, including one 2,500,000-gal. per day unit, and one 2,000,000-gal. per day capacity, both electrically-operated. C. H. Hurd, Merchants' Bank Building, Indianapolis, is engineer.

Cleveland

CLEVELAND, Aug. 3.

CONSIDERABLE additional machinery equipment was placed by the Detroit automotive industry the past week, largely in special production tools. Both the Oakland Motor Car Co. and Dodge Brothers, Inc., are credited with purchases of fair sized lots. New inquiry from this source has quieted down. The aggregate volume of business taken by local machine tool manufacturers in July is said to be about the same as in June. The Cleveland Planer Co. during the week sold a 36-in. planer to a local manufacturer. This company also booked a 26-in. planer from the American Steel & Wire Co. which was reported last week, but the name of the seller was given incorrectly.

The Weber Dental Mfg. Co., 400 Cherry Avenue, Canton, Ohio, will erect a two or three-story and basement factory addition. H. E. Weber is president.

The Virden Co., Ashland Avenue, Cleveland, has awarded contract to the Griffin Construction Co., local, for a one-story machine shop and storage building, 40 x 80 ft. The company manufactures brass products. John C. Virden is president.

The Toy Craft Co., Wooster, Ohio, will erect a two-story and basement factory, 60 x 120 ft.

The Vichek Tool Co., 3000 East Eighty-seventh Street, Cleveland, has awarded contract for a one and two-story building, 46 x 86 ft. to be used as a press department and garage. Frank J. Vichek is president.

Contract for a two-story and basement building, 40 x 65 ft., to be occupied by the Cramer Cylinder Re-Grinding Co., 252 East Market Street, Akron, Ohio, has been awarded by the owner, A. C. Miller, 36 South College Street, Akron, Ohio.

The Ohio Public Service Co., 18 Keith Building, Cleveland, has preliminary plans for the first unit of a steam-electric power plant of 100,000 hp., to be built at Dilles, near Bellaire, Ohio. George E. Snider is the chief engineer.

The Ajax Mfg. Co., Cleveland, has placed contract with the Truscon Steel Co. for a one-story brick building, 60 x 100 ft.

Refrigerating and other equipment will be required in a plant to be built by the Consumer's Dairy Co., Toledo, Ohio. J. H. Berkbile Co., 1315 Broadway, is the general contractor.

The city of Akron, Ohio, is completing plans and specifications for a sewage disposal plant at Botzum, Ohio, for which bids will be taken about Sept. 1. J. E. Rott, Delaware Building, is the engineer.

Fire, July 28, destroyed the plant, power house and equipment of the Williams Steel Wool Co., London, Ohio, with a loss of $60,000. Plans for rebuilding are said to be under consideration.

The Electrical Equipment & Mfg. Co., 1137 Champlain Street, Toledo, Ohio, has been organized with $150,000 capital stock to manufacture electrical products. It has a plant and is in production on a line of steel electrical devices. Tools and machinery have been purchased to manufacture a line of switch boxes and cabinets formerly made by the Michigan Stamping Co. of Detroit. The company will require quantities of 20-gage and 14-gage steel.

Pittsburgh

PITTSBURGH, Aug. 3.

LOCAL machine tool dealers still are doing a fairly good business for this season. Sales run largely o single tools, but are numerous and one house reports that July was the best month it has had this year. New inquiries also run chiefly to single tools. The Youngstown Sheet & Tube Co. which recently inquired for a large number of sheet and tin mill shears for Indiana Harbor, will not make purchases until the plant is nearer completion.

The Pittsburgh Coal Co., Oliver Building, Pittsburgh, T. M. Dodson, vice-president in charge of operations, will spend $600,000 in connecting four of its mines by tunnels, the construction of a new steel tipple and for mine cars.

The Hoffmann Lumber Co., 7900 Division Street, Pittsburgh, has acquired about 2½ acres in the Point Breeze district, and plans for the construction of a one-story planing mill to cost $50,000 with equipment. Frank C. Hoffmann is president.

The American Lime & Stone Co., Bellefonte, Pa., has awarded a general contract to the Spence Construction Co., Garrett Building, Baltimore, for a one-story addition to cost approximately $55,000.

The Virginian Brick Co., Princeton, W. Va., has acquired about 80 acres and has plans under way for the construction of new works. A power house and machine shop will be built. E. W. Hale is president.

The Standard Oil Co. of New Jersey, 26 Broadway, New York, is reported to be planning the construction of a new oil storage and distributing plant in the Nancy Run district, near Spencer, W. Va., to cost approximately $80,000 with equipment.

The city clerk, Meadville, Pa., is asking bids until Aug. 11 for a sewage pumping station, with equipment to develop a capacity of 200 gal. per min. Roy L. Phillips is city engineer. Dickson Andrews is city clerk.

The Pittsburgh Parking Garages, Inc., Fourth and Bingham Streets, Pittsburgh, John C. Dilworth, president, is disposing of a preferred stock issue, the proceeds to be used in connection with the erection of two automobile service, repair and garage buildings, nine-stories and six-stories, respectively, to cost $1,450,000.

The Board of Education, Ellwood City, Pa., plans the installation of manual training equipment in its proposed two-story and basement high school estimated to cost $310,000. The W. G. Eckles Co., Lawrence Savings & Trust Building, New Castle, Pa., is architect.

The Board of Public Education, Duquesne, Pa., has plans for a one-story steam power house for school service. A general contract has been let to the Pittsburgh Contracting & Engineering Co., Pittsburgh.

South Atlantic States

BALTIMORE, Aug. 3.

THE Old Maryland Brick Co., Easton, Md., is planning for extensions with additional equipment to provide for a daily output of about 30,000 brick. The company has inquiries out for a steam shovel and other equipment. N. F. Carroll is president.

The Sumter Veneer Cabinet Co., Sumter, S. C., has tentative plans for rebuilding the portion of its plant destroyed by fire, July 28, with loss reported at $30,000 including equipment.

Plans have been filed by the General Baking Co., 342 Madison Avenue, New York, for its one-story plant at North and Hartford Avenues, Baltimore, 235 x 239 ft., to cost approximately $500,000.

The Louisa County Light & Power Co., Charlottesville, Va., W. Washabaugh, president, plans the installation of two 80-hp. engines and accessory equipment at its power house at Mineral, Va.

Fire, July 26, partially destroyed the air compressor and electrical departments at the shops of the Georgia, Southern & Florida Railroad Co., Macon, Ga., with loss reported at $17,000.

The Board of Education, Asheville, N. C., plans the installation of manual training equipment at its proposed high school at West Asheville estimated to cost $200,000, for which foundations will soon be laid. C. Gadsden Sayre, Greensboro, N. C., is architect.

The M. P. Moller Co., 66 West Antietam Street, Hagerstown, Md., manufacturer of pipe organs, has awarded a general contract to the Consolidated Engineering Co., 20 East Franklin Street, Baltimore, for a one-story addition, 35 x 75 ft., to replace the portion of the works destroyed by fire several weeks ago. J. E. Moxley, Jr., 20 East Lexington Street, Baltimore, is architect.

The R. S. Armstrong & Brother Co., 676 Marietta Street, Atlanta, Ga., machinery dealer, has inquiries out for 100 and 75-hp. motors, three-phase, 60-cycle, 2200 volts, slip ring type; also for a starting compensator for a 150-hp. motor; one late type Corliss engine, 20 x 48 in.

The Maybank Fertilizer Co., Charleston, S. C., has work under way on rebuilding the portion of its plant on the Cooper River, destroyed by fire several weeks ago. The new buildings will cost about $70,000 and $60,000, respectively.

The Weston Lumber Co., South Toombs Street, Valdosta, Ga., is in the market for a planer, matcher, band saw, surfacer, and other wood-working machinery.

The Savannah Electric & Power Co., Savannah, Ga., is arranging an appropriation of $400,000 for extensions and betterments in its steam-operated electric power plant and other expansion. Additional equipment will be installed.

The United States Engineer Office, Norfolk, Va., is asking bids until Aug. 17 for the construction of a steel barge, 18 x 50 x 4 ft.

The Tri-City Fruit Co., Rock Hill, S. C., has preliminary plans under way for the construction of a cold storage plant with capacity for handling about 10 cars of produce.

The Board of Directors, Atlanta Federal Penitentiary, Atlanta, Ga., is said to be considering the installation of a new power plant to cost close to $200,000 with equipment. Luther C. White is superintendent.

The Hackley Morrison Co., Inc., 1708 Lewis Street, Richmond, Va., has inquiries out for a single drum hoisting engine, with about 600 ft. 1½-in. hoisting cable, capacity 8000 to 10,000 lb., equipped with brake for lowering; one head sheave, 4 to 6 ft. diameter, grooved for 1¼-in. rope, with shaft and bearings; one 14-in. hand jointer; one 37½-hp. fuel oil engine, Fairbanks-Morse type; one iron frame rip saw; one pump, 100 to 500 gal. per min., with suction hose, foot valve and strainer, and a number of 30 to 36 in. gage steel mine cars, 20 to 36 cu. ft. capacity with roller or other low friction bearings.

The Wheeling Can Co., Wheeling, W. Va., has tentative plans under advisement for a new storage and distributing plant at Havre de Grace, Md. Consideration is also being given to the later construction of a manufacturing unit at this location.

Joseph L. Pearson & Son, R. F. D. 1, Keusville, Va., have inquiries out for an oil-operated engine, about 20-hp. capacity, also for a 20 to 30 hp. boiler, self-container tubular type.

The American Oil Co., American Building, Baltimore, has work in progress on its new storage and distributing plant at Wilmington, Del. It has recently taken over the plant of the Tidewater Oil Co. at Philadelphia, and plans extensive improvements and the installation of additional equipment.

The Texas Co., 1135 Henry Street, Portsmouth, Va., contemplates the construction of a new oil storage and distributing plant, estimated to cost $80,000 with equipment.

Milwaukee

MILWAUKEE, Aug. 3.

ALTHOUGH indications point to a quiet summer in local industry, there is a relatively good call for equipment. Considerable buying is being done by automotive units and parts manufacturers, while passenger car builders are making replacements as well as buying to increase output. Prospects are for a healthier demand from manufacturers of steam and hydroelectric generating machinery, who appear to have an excellent year before them. Foundry and machine shop business generally is assuming a greater degree of activity which should be reflected in better tool business shortly.

The Lakeside Malleable Casting Co., Racine, Wis., has placed contracts for the erection of a one-story building, 85 x 300 ft., comprising an annealing shop and shipping room, which will replace one of the main buildings of the plant razed by fire some time ago. The new building will be ready about Sept. 15. Nelson & Co., local contractors, are in charge of the work. W. H. Osborne is president of the Lakeside company.

The Milwaukee Electric Railway & Light Co., 217 Sycamore Street, Milwaukee, has plans for improvements costing about $8,000,000 in the Milwaukee and Wisconsin properties of the North American Co. The first construction will be a steam generating plant, costing $2,000,000, at Green Bay, Wis., and a high voltage transmission line linking existing lines and reaching 250 miles from Kenosha, Wis., to Iron Mountain, Mich. The work is being designed and supervised by John Anderson, chief engineer, Milwaukee, and will call for considerable equipment, supplies, etc. S. B. Way is vice-president and general manager.

The Simmons Co., Kenosha, Wis., sustained an estimated loss of $30,000 by fire in the rolling mill, believed to have been caused by a switchboard defect, on July 25. Repairs are now being completed and replacements made.

The Northern Conveyor & Mfg. Co., formerly at 3204-3208 Auer Avenue, Milwaukee, is completing the transfer of its entire operation to Janesville, Wis., where a new manufacturing building has been erected for its use. It is buying considerable equipment of a miscellaneous character. Jesse B. Whitnall is president and general manager.

The Chicago, Milwaukee & St. Paul Railway Co. is negotiating with a syndicate of local capital with a view of rebuilding the workhouse of Elevator E, which burned a little more than a year ago. The cost is estimated at $300,000, including machinery, motors, conveyors, etc. The storage tanks, 21 in number, were not affected by the fire and provide an immediate capacity of 800,000 to 900,000 bu. R. M. Calkins, chief traffic officer, Milwaukee Road, is handling the negotiations.

The Line Material Mfg. Co., Milwaukee, manufacturer of electric pole line equipment, has acquired two acres at Clark's Summit, Pa., and will erect a plant to cost $250,000 with equipment. The two buildings on the site will also be remodeled for manufacturing purposes.

Pacific Coast

SAN FRANCISCO, July 29.

CONTRACT has been let by the Atchison, Topeka & Santa Fe Railroad Co., Los Angeles, to Robert E. McKee, El Paso, Tex., for a three-story building at its shops at San Bernardino, Cal., to cost $165,000.

The Board of Education, Long Beach, Cal., has plans for a two-story addition to the manual training shops at the George Washington junior high school, 65 x 132 ft., to cost about $90,000 with equipment. W. Horace Austin, Pacific Southwest Building, Long Beach, and J. C. Austin and Frederic M. Ashley, Chamber of Commerce Building, Los Angeles, are associated architects.

The Standard Auto Works, Inc., 2330 Jefferson Avenue, Tacoma, Wash., is considering the erection of a new plant, 100 x 120 ft. An architect will be selected early in the fall. Oliver Grodvig, general manager, is in charge.

The Pacific Gas & Electric Co., 245 Market Street, San Francisco, has plans for a one-story power house at Humboldt and Maryland Streets, to cost $75,000. The engineering department of the company is in charge.

The Wiley Machine Co., 631 East Slauson Avenue, Los Angeles, manufacturer of tools, dies, etc., has plans for a one-story addition, 80 x 122 ft. Hamm & Grant, Inc., Ferguson Building, is architect and engineer.

Arthur P. Davis, chief engineer, East Bay Municipal Utility District, Ray Building, Oakland, Cal., is asking bids until Sept. 4, for equipment for the construction of the proposed Mokelumne Aqueduct and Lancha Plana reservoir, including three pumping units to develop a capacity of 25,000,000 gal. per day, and complete accessories.

E. H. Denke, 1317 Hyde Street, San Francisco, architect, has plans for a five-story automobile service, repair and garage building, to cost $130,000 with equipment.

The Commonwealth Power & Light Corporation of Arizona, Clifton, Ariz., will ask bids in September for its proposed hydroelectric generating plant in this section, estimated to cost $2,000,000 with transmission system. W. H. Rosecranz, 108 South La Salle Street, Chicago, is architect, in charge.

The engineering department of the Golden Gate Iron Works, 1541 Howard Street, San Francisco, is preparing plans for a four-story industrial plant to be located in the Philippine Islands, near Manila, owner's name temporarily withheld. It is estimated to cost $100,000.

E. L. Del Porte, Long Beach, Cal., and associates are formulating plans for the organization of a company to construct and operate a cold storage and refrigerating plant, with a series of cold storage warehouses, estimated to cost $750,000 with equipment. Negotiations are under way for lease of a 4-acre tract on channel No. 3.

The Sodium Products Co., Seattle, Wash., incorporated with $10,000,000 capital stock, is developing deposits of sodium sulfates in that locality. It has not been decided whether the company will build a plant. No contracts have been let as yet and the company will be interested to hear from dealers in the sort of equipment required. Its works will be located at Monse, Wash. H. H. Underhill is secretary.

The Behrsin Universal Oil Burner Co., 953 Beacon Avenue, Los Angeles, Cal., organized with $100,000 capital stock, plans to build a factory and machine shop to cost about $30,000. The principals in the company have operated in this field for several years. In the new plant it will make air compressors for power, electric or gas. August Behrsin is president and general manager.

Canada

TORONTO, Aug. 3.

WHILE the machine tool market is devoid of sizable lists there is a steady flow of orders for single tools. Dealers report sales as satisfactory and slightly better than for the corresponding period a year ago.

The B. Greening Wire Co., Ltd., Queen and Napier Streets, Hamilton, Ont., manufacturer of chains, screens, wire cloth, etc., will make alterations and extensions to its plant and is contemplating the installation of additional machinery.

The Superior Stone Co., Ltd., Kitchener, Ont., has started work on the erection of an addition to its plant and is preparing to let other contracts in this connection.

J. R. McCaig, 675 St. Paul Street West, Montreal, will build a three-story garage and service station and is interested in equipment.

The Singer Mfg. Co., has let contract to Anglin-Norcross, Ltd., for the erection of a wood-working factory at Thurso, Que. The structural steel contract has been awarded to the Dominion Bridge Co., Lachine.

Construction is under way on a plant at Jarvis and Richmond Streets, Toronto, for the Pneumatic Oil Burner Co. Some contracts are to be let and machinery purchased. Dowling-Williams, Ltd., is the general contractor and J. Gordon Jack, 232 Armadale Avenue, architect.

It is reported that the James Robertson Co., Ltd., 142 William Street, Montreal, manufacturer of babbitt metal, plumbers' supplies, valves, etc., and which also controls the Kingsdon Mining, Smelting & Mfg. Co., has had plans prepared for the erection of a lead and zinc manufacturing plant in the vicinity of Chat Falls on the Ottawa River near Ottawa, Ont., at a cost of approximately $2,000,000.

J. A. Mooney, Regina, Sask., president Panama Pacific Grain Terminals, has negotiated with the Dominion Government for the lease of a portion of one of the piers at Ogden Point, Victoria, B. C., for the erection of a grain elevator to cost $1,000,000.

Foreign

THE Electricity Supply Commission, Union of South Africa, Johannesburg, is asking bids until Oct. 13 for equipment for an electric power project at Durban, including

two 12,000-kw. turbo-alternators; boiler plant equipment, with pulverized fuel equipment; coal and ash-handling machinery, electric traveling crane, condensing plant and auxiliary apparatus, transformers, switchgear and auxiliary equipment. Plans and specifications on file after Aug. 10 at the office noted, or at the National Bank of South Africa, Ltd., 44 Beaver Street, New York.

The American Chamber of Commerce in France, 32 Rue Taitbout, Paris, France, has received an inquiry (M 3100), from a company in Cyprus, desirous of getting in contact with an American manufacturer of watch mechanisms, watches and silverware.

The Chamber of Commerce of the United States of America in the Argentine Republic, Buenos Aires, Argentina, has received an inquiry (1061) from a company in Buenos Aires desiring to get in touch with American manufacturers of cotton ginning machinery, hullers, sand and boll screen, box presses, etc.

The secretary Public Works Supplies and Tenders Committee, Wellington, New Zealand, is taking bids until Sept. 29 for a quantity of electrical equipment for the Waikato Power Scheme, Penrose substation, including airbrake switches, operating gear, circuit breakers, transformers, busbars, etc., as per specifications on file.

National Enameling & Stamping Co. Shows Larger Earnings

The National Enameling & Stamping Co. reports net income for the six months ended June 30 of $839,728 after interest, depreciation, etc. This compares with $302,026 in the first half of 1924. Surplus after preferred dividends was $489,728, against a deficit in the first half of 1924 of $47,973.

President A. J. Kieckhefer in his remarks to stockholders said:

"Competition has been exceptionally keen resulting in the necessity of making very close prices. Progress is being made in the reorganization of the St. Louis Coke & Iron Co., which has been in the hands of a receiver.

"Stocks throughout the country, both manufactured goods and steel, are very low and with the excellent crop conditions throughout the United States, I am looking forward, with conservative optimism, to better sales beginning August, which should result in a satisfactory return for the last six months of 1925."

Industrial Finances

Net income of the General Refractories Co. for the six months ended June 30 was $634,704 after interest, taxes, depreciation, etc., compared with $299,987 in the same period of 1924. Surplus as of June 30 stood at $409,704 against a deficit a year ago of $149,113.

The American Steel Foundries reports net income for the second quarter after all charges of $1,438,730. Present operations are around 50 per cent of capacity. Officials of the company believe that sales in the third quarter will be somewhat below the corresponding period of last year.

Net profits of the International Business Machines Corporation for the first half of 1925 were $1,348,413, after Federal taxes, compared with $1,141,635 in that period of last year. For the period ended June 30, net profits were $793,562, after charges but before Federal taxes. This compares with $565,635 in the same period a year ago. Concerning the rumor that the International Business Machines Corporation was contemplating a merger with the Remington Typewriter Co., president Thomas J. Watson said "We haven't even considered a consolidation or working agreement of any kind with Remington, Singer or any other company."

The Otis Steel Co. reports earnings in the first half of 1925 of $1,195,022 before depreciation, but after all other charges, which compares with a deficit of $273,529 in the first half of 1924. First quarter earnings this year were $323,263 and second quarter earnings $871,759. Working capital increased about $500,000 since Jan. 1 and stands now around $3,750,000. Funded debt has been reduced $210,000 since Dec. 31. All departments reported profits in the second quarter but the strip mills showed the largest gains, reflecting the improvement in business particularly from the automotive trade.

The Bethlehem Steel Corporation has called for redemption $6,330,000 in first extension mortgage, 5 per cent bonds, maturing Jan. 1, 1926. An announcement states that they will be redeemed at par with accrued interest to date of payment. There were $12,000,000 of these bonds in the original issue. It is also planned to redeem $3,931,000 Pennsylvania and Maryland Steel consolidated joint mortgage 30-year bonds, due Sept. 1. Upon the redemption of these two issues the Bethlehem Corporation will have discharged all maturities to Jan. 1. The only bond issue maturing next year is $1,776,500 Lackawanna Iron & Steel first mortgage bonds, due Feb. 1. The retirement of these three issues together with $100,000 Ellsworth Coal bonds will reduce the funded debt to $223,699,390.

The United Alloy Steel Corporation reports net profit for the first half of 1925 of $1,094,588 after charges, Federal taxes, depreciation, etc. This compares with $648,017 in the first half of 1924. The balance sheet revealed current assets of $16,079,735 and current liabilities of $2,822,041, leaving net working capital of $13,457,454, against $11,637,370 as of June 30, 1924.

Report of the Superior Steel Corporation for the first half of 1925 reveals a deficit of $33,521, after depreciation, interest, Federal taxes, etc., compared with net income of $146,945 in the first half of 1924. The deficit in the second quarter of this year was $2,212 against a deficit in the first quarter of $33,309.

John T. Olmsted, referee in bankruptcy for the Harrisburg Foundry & Machine Co., Harrisburg, Pa., is preparing to offer the plant and equipment of the company for sale at public auction on Sept. 15. It is understood that the minimum bid to be considered will approximate $300,000.

Earnings of the General Motors Corporation for the first half of 1925 were $46,082,236, after allowing for expenses and reserve. Earnings in the same period last year were $27,066,990. President Alfred P. Sloans, Jr., stated that earnings over the six months reported established a record for the company.

Alfred C. Schulz, temporary receiver of the Bridgeport Piston Ring Co., Bridgeport, Conn., has asked the court for authority to close the business and sell the property.

Authority has been given by the courts to sell the E. Stebbins Mfg. Co., Springfield, Mass., plant and property to the Moore Drop Forging Co., that city, for $52,000.

Stockholders of the Stanley P. Rockwell Co., Hartford, Conn., have authorized an increase in the capitalization from $10,000 to $50,000 and established capital of $20,000. The company proposes to develop a dilatometer for use in heat treating of steel.

Trade Changes

H. D. Conkey & Co., manufacturers of hand power and electric traveling cranes, hoists, factory trucks, etc., Mendota, Ill., has appointed Page & Ludwick, 1417 Lytton Building, Chicago, representatives in that vicinity.

The National Enameling & Stamping Co., Granite City Steel Works, Granite City, Ill., has appointed Theodore Geissmann & Co., 624 South Michigan Boulevard, Chicago, district representatives in Wisconsin, Northern Indiana and Northwestern Illinois to handle the sale of plates.

The American Overocean Corporation, 8 Bridge Street, New York, has been incorporated by R. W. Fuller and James J. Shea to carry on the business formerly handled by the Far East Department of Washington-Dean Co., New York. The new company will continue the same foreign agencies and maintain the same correspondents. The incorporators of the new company have been with Washington-Dean Co. for several years, prior to which they were for many years connected with Arnold, Dorr & Co., New York.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general headings of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in. base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.30c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.65c.
Toe-calk, ½ x ⅜ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	7.00c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds and hex	4.00c.
Squares and flats	4.50c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	3.55c. to 3.95c.	.....
Nos. 22 and 24	3.60c. to 4.20c.	4.35c.
No. 26	3.65c. to 4.25c.	4.40c.
No. 28*	3.75c. to 4.35c.	4.50c.
No. 30	3.95c. to 4.55c.	.....

Galvanized

	Per Lb.
No. 14	3.85c. to 4.45c.
No. 16	4.00c. to 4.60c.
Nos. 18 and 20	4.15c. to 4.75c.
Nos. 22 and 24	4.30c. to 4.90c.
No. 26	4.35c. to 5.05c.
No. 28*	4.75c. to 5.35c.
No. 30	5.25c. to 5.85c.

*No. 28 lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
½ in. Butt	46	29	½ in. Butt	4	+19
¾ in. Butt	51	37	¾ in. Butt	11	+ 9
1-3 in. Butt	53	39	1-1½ in. Butt.	14	+ 6
2½-6 in. Lap	48	35	2-in. Lap	5	+14
7 & 8 in. Lap	44	17	3-6 in. Lap	11	+ 6
11 & 12 in. Lap.	37	12	7-12 in. Lap.	3	+16

Bolts and Screws

Machine bolts, cut thread, 40 and 10 per cent off list
Carriage bolts, cut thread, 30 and 10 per cent off list
Coach screws, 40 and 10 per cent off list
Wood screws, flat head iron,
72½, 25, 10 and 5 per cent off list

Steel Wire

BASE PRICE* ON No. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c.
Annealed, soft	4.50c.
Galvanized, annealed	5.15c.
Coppered, basic	5.15c.
Tinned, soft Bessemer	6.15c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	18⅝c. to 19⅝c.
High brass wire	19⅛c. to 20⅛c.
Brass rods	16⅜c. to 17⅜c.
Brass tube, brazed	26⅝c. to 27⅝c.
Brass tube, seamless	23¼c. to 24¼c.
Copper tube, seamless	24¼c. to 25¼c.

Copper Sheets

Sheet copper, hot rolled, 21¾c. to 22¾c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14x20	
	Grade "AAA"		Prime Seconds
	Grade "A"	80 lb.	$6.15 $5.90
	Charcoal	90 lb.	6.30 6.05
	Charcoal	100 lb.	6.45 6.20
	14x20	IC	6.65 6.40
IC	$11.25 $8.85	IX	7.85 7.60
IX	12.85 10.85	IXX	9.00 8.75
IXX	14.40 12.55	IXXX	10.35 10.10
IXXX	15.75 13.85	IXXXX	11.35 11.10
IXXXX	17.00 15.05		

Terne Plates

8 lb. coating, 14 x 20

100 lb.	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire-door stock	9.00 to 10.00

Tin

Straits, pig	62c.
Bar	63c. to 66c.

Copper

Lake ingot	16¾c.
Electrolytic	16½c.
Casting	16 c.

Spelter and Sheet Zinc

Western spelter	9¼c.
Sheet zinc, No. 9 base, casks	12½c. open 13c.

Lead and Solder*

American pig lead	9½c. to 12c.
Bar lead	12c.
Solder, ½ and ½ guaranteed	40c.
No. 1 solder	37c.
Refined solder	30½c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	20c. to 21c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb	38c.

Old Metals

The market continues strong and trading is active. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	12.00
Copper, heavy wire	11.50
Copper, light bottoms	9.50
Brass, heavy	7.25
Brass, light	6.00
Heavy machine composition	9.25
No. 1 yellow brass turnings	8.25
No. 1 red brass or composition turnings	8.50
Lead, heavy	7.25
Lead, tea	6.00
Zinc	4.50
Cast aluminum	17.00
Sheet aluminum	17.00